

# Predicting the leaving probabilities of customers leaving the bank using Artificial Neural Networks

## Description of the data:

This is the data set of the bank which contains different features of 10,000 customer and whether they exited the bank or not. We have to look into the data set for them and give them some insights as to why the customers are leaving at unusually high rates.

## Data Cleaning

- Data was well structured ## Exploratory data analysis
- It was found that the leaving rate of customers was higher in france, as compared to other countries
- Customers having credit cards are more likely to exit the bank
- Aged customers are more likely to leave the bank
- Exit ratio is equally distributed among the salaries ## Preparing the data

In [3]:

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

df = pd.read_csv("Churn_Modelling.csv")

df
```

## RowNumber and CustomerId are irrelevant features

In [ ]:

```
df.drop(["RowNumber", "CustomerId"], axis = 1, inplace = True)
df.head()

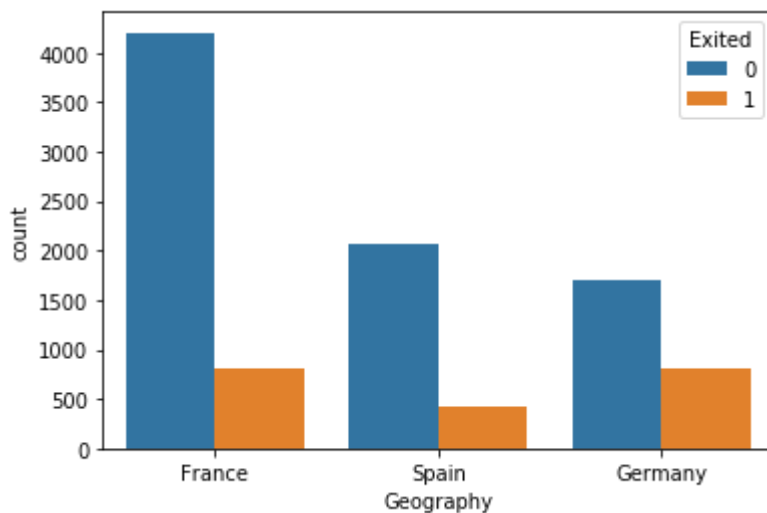
plt.figure(figsize = (12,6))
sns.heatmap(df.corr(), cmap= "viridis")
```

In [9]:

```
sns.countplot(df.Geography, hue=df.Exited)
```

Out[9]:

<matplotlib.axes.\_subplots.AxesSubplot at 0x1bf4029f608>



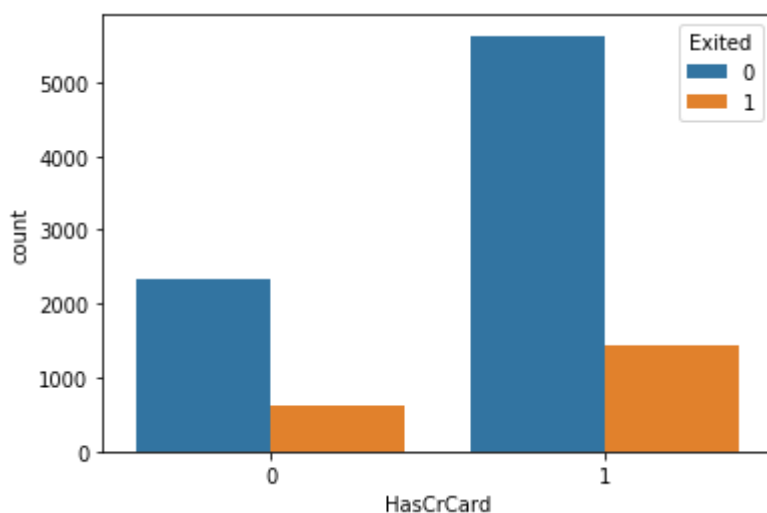
**Seems germany have a highest dropout rates and France has lowest**

In [10]:

```
sns.countplot(df.HasCrCard, hue=df.Exited)
```

Out[10]:

<matplotlib.axes.\_subplots.AxesSubplot at 0x1bf4012ae48>

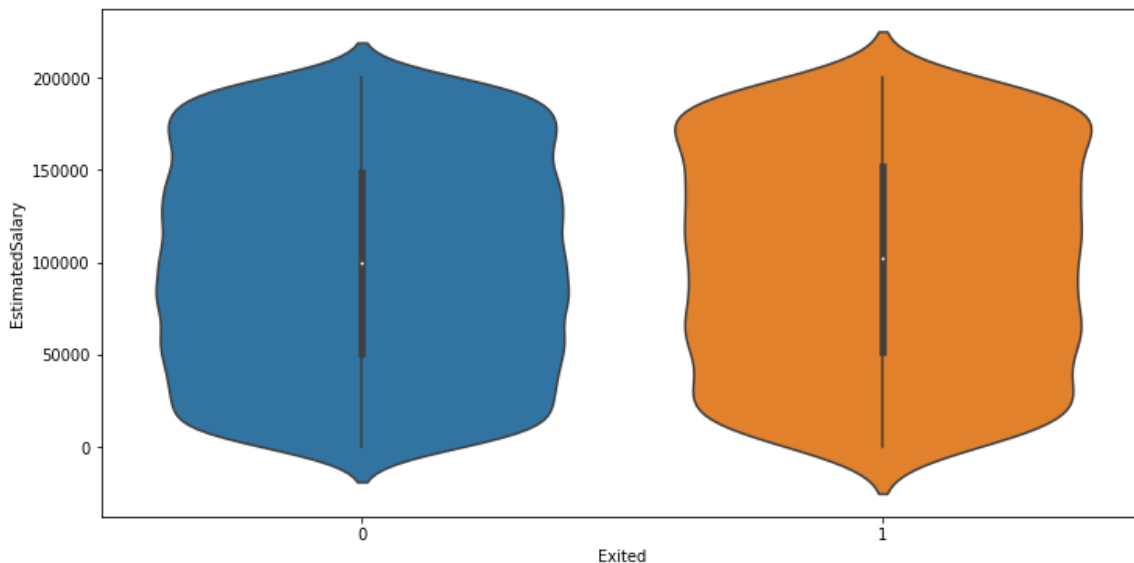


In [11]:

```
plt.figure(figsize= (12,6))
sns.violinplot(x = df.Exited, y = df.EstimatedSalary)
```

Out[11]:

<matplotlib.axes.\_subplots.AxesSubplot at 0x1bf400fe588>



**It shows that across the range of estimated Salaries, the probability of dropouts is same**

In [12]:

```
X = df.drop([ "Surname", "Exited" ], axis=1).values
y = df.Exited.values
print(X,y)

from sklearn.model_selection import train_test_split

X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.33, random_state=42)
```

```
[[619 'France' 'Female' ... 1 1 101348.88]
 [608 'Spain' 'Female' ... 0 1 112542.58]
 [502 'France' 'Female' ... 1 0 113931.57]
 ...
 [709 'France' 'Female' ... 0 1 42085.58]
 [772 'Germany' 'Male' ... 1 0 92888.52]
 [792 'France' 'Female' ... 1 0 38190.78]] [1 0 1 ... 1 1 0]
```

**Analyse our data using Excel Plugin**

In [13]:

```
import xlwings as xw

churn = xw.Book()

ws = churn.sheets.add()
ws.range('A1').value = df
```

## The excel pop up looks like this

In [18]:

```
from IPython.display import Image
```

In [19]:

```
Image(filename = "xlpopup.png")
```

Out[19]:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
		Surname	CreditScore	Geography	Gender	Age	Tenure	Balance	NumOfProducts	HasCrCard	IsActiveMember	EstimatedSalary	Exited		
1															
2	0	Hargrave	619	France	Female	42	2	0		1	1	101348.88		1	
3	1	Hill	608	Spain	Female	41	1	83807.86		1	0	112542.58		0	
4	2	Onio	502	France	Female	42	8	159660.8		3	1	113931.57		1	
5	3	Boni	699	France	Female	39	1	0		2	0	93826.63		0	
6	4	Mitchell	850	Spain	Female	43	2	125510.8		1	1	79084.1		0	
7	5	Chu	645	Spain	Male	44	8	113755.8		2	1	149756.71		1	
8	6	Bartlett	822	France	Male	50	7	0		2	1	10062.8		0	
9	7	Obinna	376	Germany	Female	29	4	115046.7		4	1	119346.88		1	
10	8	He	501	France	Male	44	4	142051.1		2	0	74940.5		0	
11	9	H?	684	France	Male	27	2	134603.9		1	1	71725.73		0	
12	10	Bearece	528	France	Male	31	6	102016.7		2	0	80181.12		0	
13	11	Andrews	497	Spain	Male	24	3	0		2	1	76390.01		0	
14	12	Kay	476	France	Female	34	10	0		2	1	26260.98		0	
15	13	Chin	549	France	Female	25	5	0		2	0	190857.79		0	
16	14	Scott	635	Spain	Female	35	7	0		2	1	65951.65		0	
17	15	Goforth	616	Germany	Male	45	3	143129.4		2	0	64327.26		0	
18	16	Romeo	653	Germany	Male	58	1	132602.9		1	1	5097.67		1	
19	17	Henderso	549	Spain	Female	24	9	0		2	1	14406.41		0	
20	18	Muldrov	587	Spain	Male	45	6	0		1	0	158684.81		0	
21	19	Hao	726	France	Female	24	6	0		2	1	54724.03		0	
22	20	McDonald	732	France	Male	41	8	0		2	1	170886.17		0	
23	21	Dellucci	636	Spain	Female	32	8	0		2	1	138555.46		0	
24	22	Gerasimo	510	Spain	Female	38	4	0		1	1	118913.53		1	
25	23	Mosman	669	France	Male	46	3	0		2	0	8487.75		0	
26	24	Yen	846	France	Female	38	5	0		1	1	187616.16		0	
27	25	Maclean	577	France	Male	25	3	0		2	0	124508.29		0	

In [20]:

```
X = df.drop([ "Surname", "Exited" ], axis=1).values
y = df.Exited.values
print(X,y)
```

```
[[619 'France' 'Female' ... 1 1 101348.88]
 [608 'Spain' 'Female' ... 0 1 112542.58]
 [502 'France' 'Female' ... 1 0 113931.57]
 ...
 [709 'France' 'Female' ... 0 1 42085.58]
 [772 'Germany' 'Male' ... 1 0 92888.52]
 [792 'France' 'Female' ... 1 0 38190.78]] [1 0 1 ... 1 1 0]
```

## Encoding categorical variables

In [21]:

```
from sklearn.preprocessing import LabelEncoder, OneHotEncoder
```

These are the columns that needs to be encoded

In [22]:

```
X
```

Out[22]:

```
array([[619, 'France', 'Female', ..., 1, 1, 101348.88],
       [608, 'Spain', 'Female', ..., 0, 1, 112542.58],
       [502, 'France', 'Female', ..., 1, 0, 113931.57],
       ...,
       [709, 'France', 'Female', ..., 0, 1, 42085.58],
       [772, 'Germany', 'Male', ..., 1, 0, 92888.52],
       [792, 'France', 'Female', ..., 1, 0, 38190.78]], dtype=object)
```

Column with index 1 and 2 needs to be encoded

In [23]:

```
label_encoder1 = LabelEncoder()
label_encoder2 = LabelEncoder()
```

In [24]:

```
X[:,1] = label_encoder1.fit_transform(X[:,1])
X[:,2] = label_encoder2.fit_transform(X[:,2])
```

In [25]:

```
X[:,1] # HAS THREE UNIQUE VALUES, THEREFORE IT NEEDS TO BE ONE HOT ENCODED
```

Out[25]:

```
array([0, 2, 0, ..., 0, 1, 0], dtype=object)
```

In [26]:

```
ohe = OneHotEncoder(categorical_features=[1])
```

In [27]:

```
X = ohe.fit_transform(X).toarray()
```

C:\Users\user\Anaconda3\lib\site-packages\sklearn\preprocessing\\_encoders.py:415: FutureWarning: The handling of integer data will change in version 0.22. Currently, the categories are determined based on the range [0, max(values)], while in the future they will be determined based on the unique values.

If you want the future behaviour and silence this warning, you can specify "categories='auto'".

In case you used a LabelEncoder before this OneHotEncoder to convert the categories to integers, then you can now use the OneHotEncoder directly.

```
warnings.warn(msg, FutureWarning)
```

C:\Users\user\Anaconda3\lib\site-packages\sklearn\preprocessing\\_encoders.py:451: DeprecationWarning: The 'categorical\_features' keyword is deprecated in version 0.20 and will be removed in 0.22. You can use the ColumnTransformer instead.

```
"use the ColumnTransformer instead.", DeprecationWarning)
```

In [28]:

```
X
```

Out[28]:

```
array([[1.0000000e+00, 0.0000000e+00, 0.0000000e+00, ..., 1.0000000e+00,
        1.0000000e+00, 1.0134888e+05],
       [0.0000000e+00, 0.0000000e+00, 1.0000000e+00, ..., 0.0000000e+00,
        1.0000000e+00, 1.1254258e+05],
       [1.0000000e+00, 0.0000000e+00, 0.0000000e+00, ..., 1.0000000e+00,
        0.0000000e+00, 1.1393157e+05],
       ...,
       [1.0000000e+00, 0.0000000e+00, 0.0000000e+00, ..., 0.0000000e+00,
        1.0000000e+00, 4.2085580e+04],
       [0.0000000e+00, 1.0000000e+00, 0.0000000e+00, ..., 1.0000000e+00,
        0.0000000e+00, 9.288520e+04],
       [1.0000000e+00, 0.0000000e+00, 0.0000000e+00, ..., 1.0000000e+00,
        0.0000000e+00, 3.8190780e+04]])
```

In [29]:

```
X = X[:, 1:]
```

## Creating the test data

In [30]:

```
from sklearn.model_selection import train_test_split
```

```
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.33, random_state=42)
```

In [31]:

```
print(X,y)
```

```
[[0.0000000e+00 0.0000000e+00 6.1900000e+02 ... 1.0000000e+00
 1.0000000e+00 1.0134888e+05]
 [0.0000000e+00 1.0000000e+00 6.0800000e+02 ... 0.0000000e+00
 1.0000000e+00 1.1254258e+05]
 [0.0000000e+00 0.0000000e+00 5.0200000e+02 ... 1.0000000e+00
 0.0000000e+00 1.1393157e+05]
 ...
 [0.0000000e+00 0.0000000e+00 7.0900000e+02 ... 0.0000000e+00
 1.0000000e+00 4.2085580e+04]
 [1.0000000e+00 0.0000000e+00 7.7200000e+02 ... 1.0000000e+00
 0.0000000e+00 9.288520e+04]
 [0.0000000e+00 0.0000000e+00 7.9200000e+02 ... 1.0000000e+00
 0.0000000e+00 3.8190780e+04]] [1 0 1 ... 1 1 0]
```

## Feature Scaling

In [32]:

```
from sklearn.preprocessing import StandardScaler
sc = StandardScaler()
X_train = sc.fit_transform(X_train)
X_test = sc.fit_transform(X_test)
```

In [33]:

```
X_train
```

Out[33]:

```
array([[ 1.74875572, -0.57987798,  1.67588802, ..., -1.54618507,
        -1.03555714,  1.50493673],
 [ 1.74875572, -0.57987798,  0.30320673, ...,  0.64675311,
        0.96566376, -1.31177144],
 [ 1.74875572, -0.57987798, -0.10235819, ...,  0.64675311,
        -1.03555714, -1.32081469],
 ...,
 [-0.57183516, -0.57987798,  0.86475817, ..., -1.54618507,
        -1.03555714, -0.15299072],
 [-0.57183516, -0.57987798,  0.15761932, ...,  0.64675311,
        -1.03555714, -0.06143595],
 [ 1.74875572, -0.57987798,  0.46959234, ...,  0.64675311,
        0.96566376, -0.82198396]])
```

## Now Data is preprocessed

## Making the Deep Learning Classifier

In [34]:

```
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Dense, Activation
```

In [35]:

```
classifier = Sequential()
```

In [36]:

```
X_train.shape
```

Out[36]:

```
(6700, 11)
```

In [37]:

```
classifier.add(Dense(6, activation = 'relu'))
classifier.add(Dense(6, activation = 'relu'))
classifier.add(Dense(1, activation = 'sigmoid'))
classifier.compile(optimizer= 'adam', loss = 'binary_crossentropy', metrics = ['accuracy'])
```



In [43]:

```
training = classifier.fit(X_train, y_train, epochs=100, batch_size=10, validation_data  
= (X_test, y_test))
```

Train on 6700 samples, validate on 3300 samples

Epoch 1/100

6700/6700 [=====] - 3s 411us/sample - loss: 0.333  
9 - accuracy: 0.8646 - val\_loss: 0.3309 - val\_accuracy: 0.8682

Epoch 2/100

6700/6700 [=====] - 3s 411us/sample - loss: 0.334  
4 - accuracy: 0.8661 - val\_loss: 0.3290 - val\_accuracy: 0.8706

Epoch 3/100

6700/6700 [=====] - 3s 384us/sample - loss: 0.334  
6 - accuracy: 0.8667 - val\_loss: 0.3283 - val\_accuracy: 0.8709

Epoch 4/100

6700/6700 [=====] - 3s 376us/sample - loss: 0.334  
0 - accuracy: 0.8663 - val\_loss: 0.3326 - val\_accuracy: 0.8682

Epoch 5/100

6700/6700 [=====] - 3s 401us/sample - loss: 0.334  
2 - accuracy: 0.8657 - val\_loss: 0.3295 - val\_accuracy: 0.8697

Epoch 6/100

6700/6700 [=====] - 3s 488us/sample - loss: 0.334  
3 - accuracy: 0.8661 - val\_loss: 0.3286 - val\_accuracy: 0.8700

Epoch 7/100

6700/6700 [=====] - 3s 415us/sample - loss: 0.334  
3 - accuracy: 0.8660 - val\_loss: 0.3299 - val\_accuracy: 0.8700

Epoch 8/100

6700/6700 [=====] - 3s 404us/sample - loss: 0.333  
8 - accuracy: 0.8651 - val\_loss: 0.3288 - val\_accuracy: 0.8712

Epoch 9/100

6700/6700 [=====] - 3s 402us/sample - loss: 0.333  
5 - accuracy: 0.8651 - val\_loss: 0.3308 - val\_accuracy: 0.8700

Epoch 10/100

6700/6700 [=====] - 3s 471us/sample - loss: 0.333  
6 - accuracy: 0.8679 - val\_loss: 0.3298 - val\_accuracy: 0.8706

Epoch 11/100

6700/6700 [=====] - 3s 448us/sample - loss: 0.333  
9 - accuracy: 0.8658 - val\_loss: 0.3300 - val\_accuracy: 0.8676

Epoch 12/100

6700/6700 [=====] - 3s 478us/sample - loss: 0.333  
5 - accuracy: 0.8649 - val\_loss: 0.3287 - val\_accuracy: 0.8667

Epoch 13/100

6700/6700 [=====] - 3s 510us/sample - loss: 0.334  
0 - accuracy: 0.8666 - val\_loss: 0.3303 - val\_accuracy: 0.8697

Epoch 14/100

6700/6700 [=====] - 4s 523us/sample - loss: 0.333  
4 - accuracy: 0.8646 - val\_loss: 0.3293 - val\_accuracy: 0.8694

Epoch 15/100

6700/6700 [=====] - 4s 565us/sample - loss: 0.332  
9 - accuracy: 0.8663 - val\_loss: 0.3341 - val\_accuracy: 0.8648

Epoch 16/100

6700/6700 [=====] - 4s 540us/sample - loss: 0.333  
9 - accuracy: 0.8660 - val\_loss: 0.3290 - val\_accuracy: 0.8697

Epoch 17/100

6700/6700 [=====] - 3s 495us/sample - loss: 0.333  
6 - accuracy: 0.8661 - val\_loss: 0.3311 - val\_accuracy: 0.8664

Epoch 18/100

6700/6700 [=====] - 4s 615us/sample - loss: 0.333  
4 - accuracy: 0.8645 - val\_loss: 0.3294 - val\_accuracy: 0.8712

Epoch 19/100

6700/6700 [=====] - 4s 603us/sample - loss: 0.333  
6 - accuracy: 0.8651 - val\_loss: 0.3313 - val\_accuracy: 0.8658

Epoch 20/100

6700/6700 [=====] - 4s 630us/sample - loss: 0.332  
9 - accuracy: 0.8660 - val\_loss: 0.3297 - val\_accuracy: 0.8685

Epoch 21/100  
6700/6700 [=====] - 3s 522us/sample - loss: 0.332  
8 - accuracy: 0.8640 - val\_loss: 0.3295 - val\_accuracy: 0.8679  
Epoch 22/100  
6700/6700 [=====] - 3s 492us/sample - loss: 0.333  
2 - accuracy: 0.8654 - val\_loss: 0.3309 - val\_accuracy: 0.8682  
Epoch 23/100  
6700/6700 [=====] - 3s 470us/sample - loss: 0.332  
8 - accuracy: 0.8657 - val\_loss: 0.3293 - val\_accuracy: 0.8697  
Epoch 24/100  
6700/6700 [=====] - 3s 476us/sample - loss: 0.333  
3 - accuracy: 0.8664 - val\_loss: 0.3322 - val\_accuracy: 0.8676  
Epoch 25/100  
6700/6700 [=====] - 3s 469us/sample - loss: 0.333  
2 - accuracy: 0.8663 - val\_loss: 0.3323 - val\_accuracy: 0.8658  
Epoch 26/100  
6700/6700 [=====] - 4s 555us/sample - loss: 0.332  
5 - accuracy: 0.8663 - val\_loss: 0.3338 - val\_accuracy: 0.8667  
Epoch 27/100  
6700/6700 [=====] - 3s 497us/sample - loss: 0.332  
8 - accuracy: 0.8687 - val\_loss: 0.3301 - val\_accuracy: 0.8682  
Epoch 28/100  
6700/6700 [=====] - 3s 499us/sample - loss: 0.332  
7 - accuracy: 0.8661 - val\_loss: 0.3292 - val\_accuracy: 0.8691  
Epoch 29/100  
6700/6700 [=====] - 3s 485us/sample - loss: 0.333  
3 - accuracy: 0.8633 - val\_loss: 0.3286 - val\_accuracy: 0.8712  
Epoch 30/100  
6700/6700 [=====] - 3s 475us/sample - loss: 0.333  
2 - accuracy: 0.8645 - val\_loss: 0.3296 - val\_accuracy: 0.8694  
Epoch 31/100  
6700/6700 [=====] - 3s 486us/sample - loss: 0.332  
5 - accuracy: 0.8675 - val\_loss: 0.3297 - val\_accuracy: 0.8694  
Epoch 32/100  
6700/6700 [=====] - 3s 503us/sample - loss: 0.333  
2 - accuracy: 0.8669 - val\_loss: 0.3299 - val\_accuracy: 0.8697  
Epoch 33/100  
6700/6700 [=====] - 3s 476us/sample - loss: 0.333  
0 - accuracy: 0.8654 - val\_loss: 0.3302 - val\_accuracy: 0.8694  
Epoch 34/100  
6700/6700 [=====] - 3s 487us/sample - loss: 0.332  
2 - accuracy: 0.8661 - val\_loss: 0.3313 - val\_accuracy: 0.8667  
Epoch 35/100  
6700/6700 [=====] - 3s 459us/sample - loss: 0.333  
4 - accuracy: 0.8633 - val\_loss: 0.3285 - val\_accuracy: 0.8697  
Epoch 36/100  
6700/6700 [=====] - 3s 454us/sample - loss: 0.333  
0 - accuracy: 0.8639 - val\_loss: 0.3289 - val\_accuracy: 0.8694  
Epoch 37/100  
6700/6700 [=====] - 3s 470us/sample - loss: 0.332  
9 - accuracy: 0.8649 - val\_loss: 0.3287 - val\_accuracy: 0.8691  
Epoch 38/100  
6700/6700 [=====] - 3s 455us/sample - loss: 0.332  
6 - accuracy: 0.8651 - val\_loss: 0.3297 - val\_accuracy: 0.8679  
Epoch 39/100  
6700/6700 [=====] - 3s 482us/sample - loss: 0.332  
5 - accuracy: 0.8637 - val\_loss: 0.3281 - val\_accuracy: 0.8670  
Epoch 40/100  
6700/6700 [=====] - 3s 479us/sample - loss: 0.332  
5 - accuracy: 0.8645 - val\_loss: 0.3296 - val\_accuracy: 0.8685  
Epoch 41/100

```
6700/6700 [=====] - 3s 463us/sample - loss: 0.332
6 - accuracy: 0.8651 - val_loss: 0.3288 - val_accuracy: 0.8688
Epoch 42/100
6700/6700 [=====] - 3s 468us/sample - loss: 0.332
4 - accuracy: 0.8667 - val_loss: 0.3294 - val_accuracy: 0.8691
Epoch 43/100
6700/6700 [=====] - 3s 469us/sample - loss: 0.332
1 - accuracy: 0.8654 - val_loss: 0.3280 - val_accuracy: 0.8700
Epoch 44/100
6700/6700 [=====] - 3s 481us/sample - loss: 0.332
5 - accuracy: 0.8669 - val_loss: 0.3287 - val_accuracy: 0.8688
Epoch 45/100
6700/6700 [=====] - 3s 478us/sample - loss: 0.332
3 - accuracy: 0.8649 - val_loss: 0.3297 - val_accuracy: 0.8697
Epoch 46/100
6700/6700 [=====] - 4s 527us/sample - loss: 0.333
0 - accuracy: 0.8651 - val_loss: 0.3286 - val_accuracy: 0.8706
Epoch 47/100
6700/6700 [=====] - 3s 514us/sample - loss: 0.332
1 - accuracy: 0.8640 - val_loss: 0.3278 - val_accuracy: 0.8697
Epoch 48/100
6700/6700 [=====] - 3s 492us/sample - loss: 0.332
6 - accuracy: 0.8660 - val_loss: 0.3282 - val_accuracy: 0.8694
Epoch 49/100
6700/6700 [=====] - 3s 492us/sample - loss: 0.332
6 - accuracy: 0.8660 - val_loss: 0.3286 - val_accuracy: 0.8706
Epoch 50/100
6700/6700 [=====] - 3s 488us/sample - loss: 0.332
1 - accuracy: 0.8654 - val_loss: 0.3303 - val_accuracy: 0.8703
Epoch 51/100
6700/6700 [=====] - 3s 484us/sample - loss: 0.332
6 - accuracy: 0.8649 - val_loss: 0.3320 - val_accuracy: 0.8688
Epoch 52/100
6700/6700 [=====] - 3s 479us/sample - loss: 0.331
9 - accuracy: 0.8651 - val_loss: 0.3307 - val_accuracy: 0.8652
Epoch 53/100
6700/6700 [=====] - 3s 487us/sample - loss: 0.332
2 - accuracy: 0.8637 - val_loss: 0.3297 - val_accuracy: 0.8700
Epoch 54/100
6700/6700 [=====] - 3s 458us/sample - loss: 0.332
6 - accuracy: 0.8661 - val_loss: 0.3287 - val_accuracy: 0.8688
Epoch 55/100
6700/6700 [=====] - 3s 485us/sample - loss: 0.332
2 - accuracy: 0.8670 - val_loss: 0.3286 - val_accuracy: 0.8694
Epoch 56/100
6700/6700 [=====] - 4s 637us/sample - loss: 0.332
3 - accuracy: 0.8643 - val_loss: 0.3292 - val_accuracy: 0.8703
Epoch 57/100
6700/6700 [=====] - 4s 575us/sample - loss: 0.331
9 - accuracy: 0.8661 - val_loss: 0.3279 - val_accuracy: 0.8712
Epoch 58/100
6700/6700 [=====] - 3s 514us/sample - loss: 0.331
8 - accuracy: 0.8655 - val_loss: 0.3292 - val_accuracy: 0.8688
Epoch 59/100
6700/6700 [=====] - 3s 456us/sample - loss: 0.332
2 - accuracy: 0.8658 - val_loss: 0.3306 - val_accuracy: 0.8648
Epoch 60/100
6700/6700 [=====] - 3s 435us/sample - loss: 0.331
9 - accuracy: 0.8643 - val_loss: 0.3289 - val_accuracy: 0.8679
Epoch 61/100
6700/6700 [=====] - 3s 440us/sample - loss: 0.331
```

```
7 - accuracy: 0.8646 - val_loss: 0.3280 - val_accuracy: 0.8700
Epoch 62/100
6700/6700 [=====] - 3s 502us/sample - loss: 0.332
0 - accuracy: 0.8631 - val_loss: 0.3289 - val_accuracy: 0.8709
Epoch 63/100
6700/6700 [=====] - 3s 450us/sample - loss: 0.331
9 - accuracy: 0.8672 - val_loss: 0.3292 - val_accuracy: 0.8697
Epoch 64/100
6700/6700 [=====] - 3s 434us/sample - loss: 0.332
6 - accuracy: 0.8661 - val_loss: 0.3288 - val_accuracy: 0.8688
Epoch 65/100
6700/6700 [=====] - 3s 447us/sample - loss: 0.331
6 - accuracy: 0.8652 - val_loss: 0.3290 - val_accuracy: 0.8694
Epoch 66/100
6700/6700 [=====] - 3s 429us/sample - loss: 0.331
8 - accuracy: 0.8642 - val_loss: 0.3281 - val_accuracy: 0.8697
Epoch 67/100
6700/6700 [=====] - 3s 442us/sample - loss: 0.332
0 - accuracy: 0.8642 - val_loss: 0.3296 - val_accuracy: 0.8688
Epoch 68/100
6700/6700 [=====] - 3s 439us/sample - loss: 0.332
4 - accuracy: 0.8640 - val_loss: 0.3279 - val_accuracy: 0.8682
Epoch 69/100
6700/6700 [=====] - 3s 437us/sample - loss: 0.332
0 - accuracy: 0.8636 - val_loss: 0.3294 - val_accuracy: 0.8703
Epoch 70/100
6700/6700 [=====] - 3s 437us/sample - loss: 0.331
9 - accuracy: 0.8651 - val_loss: 0.3293 - val_accuracy: 0.8691
Epoch 71/100
6700/6700 [=====] - 4s 661us/sample - loss: 0.332
0 - accuracy: 0.8649 - val_loss: 0.3321 - val_accuracy: 0.8664
Epoch 72/100
6700/6700 [=====] - 3s 506us/sample - loss: 0.331
9 - accuracy: 0.8651 - val_loss: 0.3296 - val_accuracy: 0.8676
Epoch 73/100
6700/6700 [=====] - 3s 483us/sample - loss: 0.331
6 - accuracy: 0.8658 - val_loss: 0.3292 - val_accuracy: 0.8703
Epoch 74/100
6700/6700 [=====] - 4s 542us/sample - loss: 0.331
8 - accuracy: 0.8654 - val_loss: 0.3283 - val_accuracy: 0.8676
Epoch 75/100
6700/6700 [=====] - 4s 551us/sample - loss: 0.331
9 - accuracy: 0.8658 - val_loss: 0.3309 - val_accuracy: 0.8670
Epoch 76/100
6700/6700 [=====] - 4s 577us/sample - loss: 0.332
4 - accuracy: 0.8669 - val_loss: 0.3285 - val_accuracy: 0.8685
Epoch 77/100
6700/6700 [=====] - 4s 630us/sample - loss: 0.332
1 - accuracy: 0.8649 - val_loss: 0.3279 - val_accuracy: 0.8676
Epoch 78/100
6700/6700 [=====] - 4s 537us/sample - loss: 0.331
4 - accuracy: 0.8640 - val_loss: 0.3287 - val_accuracy: 0.8685
Epoch 79/100
6700/6700 [=====] - 4s 538us/sample - loss: 0.331
4 - accuracy: 0.8645 - val_loss: 0.3287 - val_accuracy: 0.8697
Epoch 80/100
6700/6700 [=====] - 3s 481us/sample - loss: 0.332
1 - accuracy: 0.8658 - val_loss: 0.3265 - val_accuracy: 0.8694
Epoch 81/100
6700/6700 [=====] - 3s 483us/sample - loss: 0.332
0 - accuracy: 0.8643 - val_loss: 0.3286 - val_accuracy: 0.8697
```

```
Epoch 82/100
6700/6700 [=====] - 4s 526us/sample - loss: 0.331
8 - accuracy: 0.8646 - val_loss: 0.3272 - val_accuracy: 0.8694
Epoch 83/100
6700/6700 [=====] - 4s 542us/sample - loss: 0.332
0 - accuracy: 0.8643 - val_loss: 0.3275 - val_accuracy: 0.8688
Epoch 84/100
6700/6700 [=====] - 3s 519us/sample - loss: 0.331
5 - accuracy: 0.8657 - val_loss: 0.3277 - val_accuracy: 0.8685
Epoch 85/100
6700/6700 [=====] - 3s 498us/sample - loss: 0.331
2 - accuracy: 0.8651 - val_loss: 0.3284 - val_accuracy: 0.8682
Epoch 86/100
6700/6700 [=====] - 3s 499us/sample - loss: 0.332
5 - accuracy: 0.8655 - val_loss: 0.3295 - val_accuracy: 0.8682
Epoch 87/100
6700/6700 [=====] - 3s 471us/sample - loss: 0.332
3 - accuracy: 0.8661 - val_loss: 0.3270 - val_accuracy: 0.8661
Epoch 88/100
6700/6700 [=====] - 4s 533us/sample - loss: 0.332
1 - accuracy: 0.8649 - val_loss: 0.3275 - val_accuracy: 0.8691
Epoch 89/100
6700/6700 [=====] - 3s 468us/sample - loss: 0.331
3 - accuracy: 0.8648 - val_loss: 0.3281 - val_accuracy: 0.8664
Epoch 90/100
6700/6700 [=====] - 3s 481us/sample - loss: 0.331
9 - accuracy: 0.8666 - val_loss: 0.3288 - val_accuracy: 0.8679
Epoch 91/100
6700/6700 [=====] - 3s 449us/sample - loss: 0.331
7 - accuracy: 0.8651 - val_loss: 0.3280 - val_accuracy: 0.8691
Epoch 92/100
6700/6700 [=====] - 3s 442us/sample - loss: 0.331
2 - accuracy: 0.8640 - val_loss: 0.3288 - val_accuracy: 0.8697
Epoch 93/100
6700/6700 [=====] - 3s 464us/sample - loss: 0.331
8 - accuracy: 0.8645 - val_loss: 0.3281 - val_accuracy: 0.8688
Epoch 94/100
6700/6700 [=====] - 3s 457us/sample - loss: 0.331
7 - accuracy: 0.8643 - val_loss: 0.3283 - val_accuracy: 0.8691
Epoch 95/100
6700/6700 [=====] - 3s 433us/sample - loss: 0.331
8 - accuracy: 0.8643 - val_loss: 0.3281 - val_accuracy: 0.8709
Epoch 96/100
6700/6700 [=====] - 3s 440us/sample - loss: 0.332
0 - accuracy: 0.8657 - val_loss: 0.3279 - val_accuracy: 0.8688
Epoch 97/100
6700/6700 [=====] - 3s 451us/sample - loss: 0.331
7 - accuracy: 0.8655 - val_loss: 0.3290 - val_accuracy: 0.8685
Epoch 98/100
6700/6700 [=====] - 3s 439us/sample - loss: 0.331
6 - accuracy: 0.8663 - val_loss: 0.3283 - val_accuracy: 0.8688
Epoch 99/100
6700/6700 [=====] - 3s 432us/sample - loss: 0.331
7 - accuracy: 0.8658 - val_loss: 0.3304 - val_accuracy: 0.8688
Epoch 100/100
6700/6700 [=====] - 3s 449us/sample - loss: 0.331
8 - accuracy: 0.8657 - val_loss: 0.3280 - val_accuracy: 0.8691
```

## We got an accuracy of 87 percent right of the bat

In [55]:

```
predictions = classifier.predict(X_test)
```

In [56]:

```
y_pred = predictions > 0.5
```

In [57]:

```
from sklearn.metrics import confusion_matrix
```

In [58]:

```
confusion_matrix(y_pred, y_test)
```

Out[58]:

```
array([[2556,  331],
       [ 101,  312]], dtype=int64)
```

In [59]:

```
from sklearn.metrics import classification_report
print(classification_report(y_test, y_pred))
```

	precision	recall	f1-score	support
0	0.89	0.96	0.92	2657
1	0.76	0.49	0.59	643
accuracy			0.87	3300
macro avg	0.82	0.72	0.76	3300
weighted avg	0.86	0.87	0.86	3300

In [60]:

```
from tensorflow.keras.wrappers.scikit_learn import KerasClassifier
```

In [61]:

```
from sklearn.model_selection import cross_val_score
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Dropout
from tensorflow.keras.layers import Dense
```

**Using cross\_val score to have a better estimate of bias and variance. Cross\_val\_score lets it use all of the available gpu**

In [ ]:

```
def build_classifier():
    classifier = Sequential()
    classifier.add(Dense(units = 6, kernel_initializer = 'uniform', activation = 'relu'
, input_dim = 11))
    classifier.add(Dense(units = 6, kernel_initializer = 'uniform', activation = 'relu'
))
    classifier.add(Dense(units = 1, kernel_initializer = 'uniform', activation = 'sigmo
id'))
    classifier.compile(optimizer = 'adam', loss = 'binary_crossentropy', metrics = ['ac
curacy'])
    return classifier
classifier = KerasClassifier(build_fn = build_classifier, batch_size = 10, epochs = 100
)
accuracies = cross_val_score(estimator = classifier, X = X_train, y = y_train, cv = 10,
n_jobs = -1)
```

In [70]:

```
accuracies.mean()
```

Out[70]:

```
0.8382089555263519
```

In [ ]:

In [ ]:

In [73]:

```
classifier = Sequential()
classifier.add(Dense(units = 6, kernel_initializer = 'uniform', activation = 'relu', in
put_dim = 11))
classifier.add(Dropout(rate = 0.1))
classifier.add(Dense(units = 6, kernel_initializer = 'uniform', activation = 'relu'))
classifier.add(Dropout( rate = 0.1))
classifier.add(Dense(units = 1, kernel_initializer = 'uniform', activation = 'sigmoid'
))
classifier.compile(optimizer = 'adam', loss = 'binary_crossentropy', metrics = ['accura
cy'])
```



In [74]:

```
classifier.fit(x = X_train,y = y_train, epochs = 100, batch_size= 10, validation_data=  
(X_test, y_test))
```

Train on 6700 samples, validate on 3300 samples

Epoch 1/100

6700/6700 [=====] - 2s 354us/sample - loss: 0.516  
4 - accuracy: 0.7913 - val\_loss: 0.4240 - val\_accuracy: 0.8052

Epoch 2/100

6700/6700 [=====] - 2s 248us/sample - loss: 0.449  
0 - accuracy: 0.7919 - val\_loss: 0.4164 - val\_accuracy: 0.8052

Epoch 3/100

6700/6700 [=====] - 2s 242us/sample - loss: 0.443  
1 - accuracy: 0.7919 - val\_loss: 0.4129 - val\_accuracy: 0.8052

Epoch 4/100

6700/6700 [=====] - 2s 238us/sample - loss: 0.439  
4 - accuracy: 0.7919 - val\_loss: 0.4115 - val\_accuracy: 0.8052

Epoch 5/100

6700/6700 [=====] - 2s 233us/sample - loss: 0.440  
0 - accuracy: 0.7919 - val\_loss: 0.4094 - val\_accuracy: 0.8052

Epoch 6/100

6700/6700 [=====] - 2s 228us/sample - loss: 0.437  
2 - accuracy: 0.7919 - val\_loss: 0.4073 - val\_accuracy: 0.8052

Epoch 7/100

6700/6700 [=====] - 2s 252us/sample - loss: 0.434  
1 - accuracy: 0.7919 - val\_loss: 0.4067 - val\_accuracy: 0.8052

Epoch 8/100

6700/6700 [=====] - 2s 265us/sample - loss: 0.435  
5 - accuracy: 0.7919 - val\_loss: 0.4070 - val\_accuracy: 0.8052

Epoch 9/100

6700/6700 [=====] - 2s 260us/sample - loss: 0.433  
4 - accuracy: 0.7987 - val\_loss: 0.4055 - val\_accuracy: 0.8282

Epoch 10/100

6700/6700 [=====] - 2s 272us/sample - loss: 0.433  
6 - accuracy: 0.8212 - val\_loss: 0.4038 - val\_accuracy: 0.8261

Epoch 11/100

6700/6700 [=====] - 2s 277us/sample - loss: 0.432  
2 - accuracy: 0.8218 - val\_loss: 0.4067 - val\_accuracy: 0.8324

Epoch 12/100

6700/6700 [=====] - 2s 252us/sample - loss: 0.433  
4 - accuracy: 0.8269 - val\_loss: 0.4033 - val\_accuracy: 0.8294

Epoch 13/100

6700/6700 [=====] - 2s 258us/sample - loss: 0.430  
9 - accuracy: 0.8248 - val\_loss: 0.4029 - val\_accuracy: 0.8327

Epoch 14/100

6700/6700 [=====] - 2s 253us/sample - loss: 0.435  
9 - accuracy: 0.8242 - val\_loss: 0.4051 - val\_accuracy: 0.8367

Epoch 15/100

6700/6700 [=====] - 2s 262us/sample - loss: 0.432  
2 - accuracy: 0.8245 - val\_loss: 0.4040 - val\_accuracy: 0.8336

Epoch 16/100

6700/6700 [=====] - 2s 236us/sample - loss: 0.433  
1 - accuracy: 0.8242 - val\_loss: 0.4025 - val\_accuracy: 0.8345

Epoch 17/100

6700/6700 [=====] - 2s 233us/sample - loss: 0.430  
2 - accuracy: 0.8276 - val\_loss: 0.4030 - val\_accuracy: 0.8333

Epoch 18/100

6700/6700 [=====] - 2s 242us/sample - loss: 0.432  
9 - accuracy: 0.8221 - val\_loss: 0.4026 - val\_accuracy: 0.8370

Epoch 19/100

6700/6700 [=====] - 2s 254us/sample - loss: 0.430  
7 - accuracy: 0.8237 - val\_loss: 0.4023 - val\_accuracy: 0.8367

Epoch 20/100

6700/6700 [=====] - 2s 237us/sample - loss: 0.428  
7 - accuracy: 0.8264 - val\_loss: 0.4029 - val\_accuracy: 0.8376

Epoch 21/100  
6700/6700 [=====] - 2s 319us/sample - loss: 0.430  
8 - accuracy: 0.8270 - val\_loss: 0.4008 - val\_accuracy: 0.8376

Epoch 22/100  
6700/6700 [=====] - 2s 326us/sample - loss: 0.430  
1 - accuracy: 0.8255 - val\_loss: 0.4005 - val\_accuracy: 0.8367

Epoch 23/100  
6700/6700 [=====] - 2s 333us/sample - loss: 0.432  
2 - accuracy: 0.8276 - val\_loss: 0.4013 - val\_accuracy: 0.8370

Epoch 24/100  
6700/6700 [=====] - 2s 340us/sample - loss: 0.426  
0 - accuracy: 0.8281 - val\_loss: 0.4027 - val\_accuracy: 0.8364

Epoch 25/100  
6700/6700 [=====] - 2s 326us/sample - loss: 0.427  
9 - accuracy: 0.8261 - val\_loss: 0.4010 - val\_accuracy: 0.8379

Epoch 26/100  
6700/6700 [=====] - 2s 310us/sample - loss: 0.429  
8 - accuracy: 0.8279 - val\_loss: 0.4004 - val\_accuracy: 0.8391

Epoch 27/100  
6700/6700 [=====] - 2s 291us/sample - loss: 0.427  
7 - accuracy: 0.8266 - val\_loss: 0.3994 - val\_accuracy: 0.8370

Epoch 28/100  
6700/6700 [=====] - 2s 237us/sample - loss: 0.432  
9 - accuracy: 0.8257 - val\_loss: 0.4002 - val\_accuracy: 0.8379

Epoch 29/100  
6700/6700 [=====] - 2s 233us/sample - loss: 0.430  
3 - accuracy: 0.8300 - val\_loss: 0.4006 - val\_accuracy: 0.8388

Epoch 30/100  
6700/6700 [=====] - 2s 243us/sample - loss: 0.432  
8 - accuracy: 0.8264 - val\_loss: 0.4005 - val\_accuracy: 0.8382

Epoch 31/100  
6700/6700 [=====] - 2s 229us/sample - loss: 0.431  
5 - accuracy: 0.8252 - val\_loss: 0.3998 - val\_accuracy: 0.8373

Epoch 32/100  
6700/6700 [=====] - 2s 236us/sample - loss: 0.429  
5 - accuracy: 0.8258 - val\_loss: 0.3991 - val\_accuracy: 0.8412

Epoch 33/100  
6700/6700 [=====] - 2s 283us/sample - loss: 0.430  
4 - accuracy: 0.8261 - val\_loss: 0.3992 - val\_accuracy: 0.8385

Epoch 34/100  
6700/6700 [=====] - 2s 248us/sample - loss: 0.431  
2 - accuracy: 0.8257 - val\_loss: 0.3995 - val\_accuracy: 0.8391

Epoch 35/100  
6700/6700 [=====] - 2s 233us/sample - loss: 0.431  
9 - accuracy: 0.8304 - val\_loss: 0.3991 - val\_accuracy: 0.8376

Epoch 36/100  
6700/6700 [=====] - 2s 245us/sample - loss: 0.429  
5 - accuracy: 0.8288 - val\_loss: 0.4003 - val\_accuracy: 0.8391

Epoch 37/100  
6700/6700 [=====] - 2s 256us/sample - loss: 0.428  
6 - accuracy: 0.8272 - val\_loss: 0.3993 - val\_accuracy: 0.8388

Epoch 38/100  
6700/6700 [=====] - 2s 251us/sample - loss: 0.429  
4 - accuracy: 0.8246 - val\_loss: 0.3988 - val\_accuracy: 0.8397

Epoch 39/100  
6700/6700 [=====] - 2s 248us/sample - loss: 0.430  
4 - accuracy: 0.8275 - val\_loss: 0.3987 - val\_accuracy: 0.8385

Epoch 40/100  
6700/6700 [=====] - 2s 272us/sample - loss: 0.431  
7 - accuracy: 0.8257 - val\_loss: 0.3991 - val\_accuracy: 0.8385

Epoch 41/100

```
6700/6700 [=====] - 2s 254us/sample - loss: 0.431
3 - accuracy: 0.8276 - val_loss: 0.3992 - val_accuracy: 0.8400
Epoch 42/100
6700/6700 [=====] - 2s 251us/sample - loss: 0.431
1 - accuracy: 0.8263 - val_loss: 0.3987 - val_accuracy: 0.8394
Epoch 43/100
6700/6700 [=====] - 2s 281us/sample - loss: 0.426
6 - accuracy: 0.8284 - val_loss: 0.3987 - val_accuracy: 0.8397
Epoch 44/100
6700/6700 [=====] - 2s 247us/sample - loss: 0.428
7 - accuracy: 0.8270 - val_loss: 0.3982 - val_accuracy: 0.8364
Epoch 45/100
6700/6700 [=====] - 2s 352us/sample - loss: 0.431
0 - accuracy: 0.8269 - val_loss: 0.3979 - val_accuracy: 0.8370
Epoch 46/100
6700/6700 [=====] - 3s 420us/sample - loss: 0.434
9 - accuracy: 0.8227 - val_loss: 0.3998 - val_accuracy: 0.8379
Epoch 47/100
6700/6700 [=====] - 2s 286us/sample - loss: 0.431
9 - accuracy: 0.8266 - val_loss: 0.3980 - val_accuracy: 0.8391
Epoch 48/100
6700/6700 [=====] - 2s 271us/sample - loss: 0.428
2 - accuracy: 0.8249 - val_loss: 0.3986 - val_accuracy: 0.8382
Epoch 49/100
6700/6700 [=====] - 2s 270us/sample - loss: 0.426
4 - accuracy: 0.8279 - val_loss: 0.3988 - val_accuracy: 0.8412
Epoch 50/100
6700/6700 [=====] - 2s 296us/sample - loss: 0.432
2 - accuracy: 0.8264 - val_loss: 0.3981 - val_accuracy: 0.8388
Epoch 51/100
6700/6700 [=====] - 2s 270us/sample - loss: 0.427
0 - accuracy: 0.8287 - val_loss: 0.3986 - val_accuracy: 0.8394
Epoch 52/100
6700/6700 [=====] - 2s 277us/sample - loss: 0.427
0 - accuracy: 0.8288 - val_loss: 0.3979 - val_accuracy: 0.8394
Epoch 53/100
6700/6700 [=====] - 2s 289us/sample - loss: 0.427
9 - accuracy: 0.8278 - val_loss: 0.3982 - val_accuracy: 0.8373
Epoch 54/100
6700/6700 [=====] - 2s 257us/sample - loss: 0.430
6 - accuracy: 0.8264 - val_loss: 0.3971 - val_accuracy: 0.8379
Epoch 55/100
6700/6700 [=====] - 2s 250us/sample - loss: 0.428
4 - accuracy: 0.8251 - val_loss: 0.3985 - val_accuracy: 0.8379
Epoch 56/100
6700/6700 [=====] - 2s 252us/sample - loss: 0.425
8 - accuracy: 0.8287 - val_loss: 0.3976 - val_accuracy: 0.8388
Epoch 57/100
6700/6700 [=====] - 2s 273us/sample - loss: 0.428
3 - accuracy: 0.8324 - val_loss: 0.3975 - val_accuracy: 0.8403
Epoch 58/100
6700/6700 [=====] - 2s 277us/sample - loss: 0.427
7 - accuracy: 0.8261 - val_loss: 0.3976 - val_accuracy: 0.8406
Epoch 59/100
6700/6700 [=====] - 2s 246us/sample - loss: 0.429
8 - accuracy: 0.8249 - val_loss: 0.3978 - val_accuracy: 0.8382
Epoch 60/100
6700/6700 [=====] - 2s 253us/sample - loss: 0.431
2 - accuracy: 0.8279 - val_loss: 0.3982 - val_accuracy: 0.8400
Epoch 61/100
6700/6700 [=====] - 2s 252us/sample - loss: 0.430
```

```
2 - accuracy: 0.8281 - val_loss: 0.3973 - val_accuracy: 0.8373
Epoch 62/100
6700/6700 [=====] - 2s 257us/sample - loss: 0.427
7 - accuracy: 0.8251 - val_loss: 0.3981 - val_accuracy: 0.8379
Epoch 63/100
6700/6700 [=====] - 2s 313us/sample - loss: 0.433
7 - accuracy: 0.8261 - val_loss: 0.3980 - val_accuracy: 0.8373
Epoch 64/100
6700/6700 [=====] - 2s 280us/sample - loss: 0.429
4 - accuracy: 0.8258 - val_loss: 0.3984 - val_accuracy: 0.8379
Epoch 65/100
6700/6700 [=====] - 2s 290us/sample - loss: 0.429
5 - accuracy: 0.8276 - val_loss: 0.3985 - val_accuracy: 0.8400
Epoch 66/100
6700/6700 [=====] - 2s 260us/sample - loss: 0.429
0 - accuracy: 0.8254 - val_loss: 0.3981 - val_accuracy: 0.8418
Epoch 67/100
6700/6700 [=====] - 2s 255us/sample - loss: 0.430
0 - accuracy: 0.8249 - val_loss: 0.3971 - val_accuracy: 0.8403
Epoch 68/100
6700/6700 [=====] - 2s 293us/sample - loss: 0.427
5 - accuracy: 0.8284 - val_loss: 0.3971 - val_accuracy: 0.8373
Epoch 69/100
6700/6700 [=====] - 2s 254us/sample - loss: 0.432
8 - accuracy: 0.8294 - val_loss: 0.3974 - val_accuracy: 0.8418
Epoch 70/100
6700/6700 [=====] - 2s 249us/sample - loss: 0.427
6 - accuracy: 0.8269 - val_loss: 0.3978 - val_accuracy: 0.8400
Epoch 71/100
6700/6700 [=====] - 2s 248us/sample - loss: 0.427
4 - accuracy: 0.8285 - val_loss: 0.3990 - val_accuracy: 0.8439
Epoch 72/100
6700/6700 [=====] - 2s 257us/sample - loss: 0.430
7 - accuracy: 0.8258 - val_loss: 0.3994 - val_accuracy: 0.8433
Epoch 73/100
6700/6700 [=====] - 2s 247us/sample - loss: 0.428
3 - accuracy: 0.8284 - val_loss: 0.3984 - val_accuracy: 0.8430
Epoch 74/100
6700/6700 [=====] - 2s 247us/sample - loss: 0.428
8 - accuracy: 0.8304 - val_loss: 0.3979 - val_accuracy: 0.8436
Epoch 75/100
6700/6700 [=====] - 2s 246us/sample - loss: 0.428
7 - accuracy: 0.8272 - val_loss: 0.3998 - val_accuracy: 0.8445
Epoch 76/100
6700/6700 [=====] - 2s 246us/sample - loss: 0.428
3 - accuracy: 0.8254 - val_loss: 0.3980 - val_accuracy: 0.8436
Epoch 77/100
6700/6700 [=====] - 2s 251us/sample - loss: 0.431
7 - accuracy: 0.8276 - val_loss: 0.3988 - val_accuracy: 0.8418
Epoch 78/100
6700/6700 [=====] - 2s 252us/sample - loss: 0.424
5 - accuracy: 0.8284 - val_loss: 0.3980 - val_accuracy: 0.8445
Epoch 79/100
6700/6700 [=====] - 2s 262us/sample - loss: 0.427
7 - accuracy: 0.8272 - val_loss: 0.3981 - val_accuracy: 0.8448
Epoch 80/100
6700/6700 [=====] - 2s 274us/sample - loss: 0.429
4 - accuracy: 0.8266 - val_loss: 0.3974 - val_accuracy: 0.8412
Epoch 81/100
6700/6700 [=====] - 2s 261us/sample - loss: 0.428
8 - accuracy: 0.8291 - val_loss: 0.3988 - val_accuracy: 0.8415
```

```
Epoch 82/100
6700/6700 [=====] - 2s 249us/sample - loss: 0.430
4 - accuracy: 0.8269 - val_loss: 0.3979 - val_accuracy: 0.8439
Epoch 83/100
6700/6700 [=====] - 2s 251us/sample - loss: 0.427
8 - accuracy: 0.8299 - val_loss: 0.3997 - val_accuracy: 0.8430
Epoch 84/100
6700/6700 [=====] - 2s 253us/sample - loss: 0.431
0 - accuracy: 0.8261 - val_loss: 0.3980 - val_accuracy: 0.8412
Epoch 85/100
6700/6700 [=====] - 2s 255us/sample - loss: 0.430
9 - accuracy: 0.8275 - val_loss: 0.3982 - val_accuracy: 0.8427
Epoch 86/100
6700/6700 [=====] - 2s 274us/sample - loss: 0.422
3 - accuracy: 0.8293 - val_loss: 0.4045 - val_accuracy: 0.8406
Epoch 87/100
6700/6700 [=====] - 2s 288us/sample - loss: 0.428
8 - accuracy: 0.8269 - val_loss: 0.3970 - val_accuracy: 0.8436
Epoch 88/100
6700/6700 [=====] - 2s 250us/sample - loss: 0.427
4 - accuracy: 0.8278 - val_loss: 0.3977 - val_accuracy: 0.8436
Epoch 89/100
6700/6700 [=====] - 2s 249us/sample - loss: 0.426
2 - accuracy: 0.8248 - val_loss: 0.3974 - val_accuracy: 0.8427
Epoch 90/100
6700/6700 [=====] - 2s 248us/sample - loss: 0.429
3 - accuracy: 0.8252 - val_loss: 0.3972 - val_accuracy: 0.8406
Epoch 91/100
6700/6700 [=====] - 2s 250us/sample - loss: 0.429
4 - accuracy: 0.8263 - val_loss: 0.4019 - val_accuracy: 0.8421
Epoch 92/100
6700/6700 [=====] - 2s 255us/sample - loss: 0.430
9 - accuracy: 0.8264 - val_loss: 0.3994 - val_accuracy: 0.8421
Epoch 93/100
6700/6700 [=====] - 2s 255us/sample - loss: 0.428
4 - accuracy: 0.8267 - val_loss: 0.3979 - val_accuracy: 0.8430
Epoch 94/100
6700/6700 [=====] - 2s 251us/sample - loss: 0.428
8 - accuracy: 0.8270 - val_loss: 0.3985 - val_accuracy: 0.8433
Epoch 95/100
6700/6700 [=====] - 2s 275us/sample - loss: 0.427
0 - accuracy: 0.8258 - val_loss: 0.3995 - val_accuracy: 0.8427
Epoch 96/100
6700/6700 [=====] - 2s 255us/sample - loss: 0.428
7 - accuracy: 0.8257 - val_loss: 0.3985 - val_accuracy: 0.8442
Epoch 97/100
6700/6700 [=====] - 2s 249us/sample - loss: 0.431
4 - accuracy: 0.8290 - val_loss: 0.3993 - val_accuracy: 0.8418
Epoch 98/100
6700/6700 [=====] - 2s 271us/sample - loss: 0.427
5 - accuracy: 0.8275 - val_loss: 0.3979 - val_accuracy: 0.8412
Epoch 99/100
6700/6700 [=====] - 2s 263us/sample - loss: 0.429
9 - accuracy: 0.8252 - val_loss: 0.3987 - val_accuracy: 0.8436
Epoch 100/100
6700/6700 [=====] - 2s 276us/sample - loss: 0.429
2 - accuracy: 0.8270 - val_loss: 0.3983 - val_accuracy: 0.8412
```

Out[74]:

<tensorflow.python.keras.callbacks.History at 0x191baaad108>

In [42]:

```
history = pd.DataFrame(classifier.history.history)
losses = history[["loss", "val_loss"]]
```

	loss	accuracy
0	0.527770	0.791940
1	0.460473	0.791940
2	0.436834	0.793582
3	0.419299	0.823284
4	0.401455	0.834478
..	...	...
95	0.333549	0.866119
96	0.335137	0.864030
97	0.334711	0.864328
98	0.334809	0.865970
99	0.334133	0.865970

[100 rows x 2 columns]

In [ ]:

```
losses[["loss", "val_loss"]].plot()
```

**Does't seem like over fitting, lets do the hyperparameter tuning and try to increase the accuracy by wrapping the model into sikit learn readable form**

In [ ]:

```
from tensorflow.keras.wrappers.scikit_learn import KerasClassifier
from sklearn.model_selection import GridSearchCV
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Dense
def build_classifier(optimizer):
    classifier = Sequential()
    classifier.add(Dense(units = 6, kernel_initializer = 'uniform', activation = 'relu'
, input_dim = 11))
    classifier.add(Dense(units = 6, kernel_initializer = 'uniform', activation = 'relu'
))
    classifier.add(Dense(units = 1, kernel_initializer = 'uniform', activation = 'sigmo
id'))
    classifier.compile(optimizer = optimizer, loss = 'binary_crossentropy', metrics = [
'accuracy'])
    return classifier
classifier = KerasClassifier(build_fn = build_classifier)
parameters = {'batch_size': [25, 32], 'epochs': [100, 500], 'optimizer': ['adam', 'rmspro
p']}
grid_search = GridSearchCV(estimator = classifier, param_grid = parameters, scoring =
'accuracy', cv = 10)
grid_search = grid_search.fit(X_train, y_train)
best_parameters = grid_search.best_params_
best_accuracy = grid_search.best_score_
```



Train on 6030 samples

Epoch 1/100

6030/6030 [=====] - 6s 1ms/sample - loss: 0.5881

- accuracy: 0.7949

Epoch 2/100

6030/6030 [=====] - 1s 217us/sample - loss: 0.445

7 - accuracy: 0.7954

Epoch 3/100

6030/6030 [=====] - 1s 187us/sample - loss: 0.436

0 - accuracy: 0.7954

Epoch 4/100

6030/6030 [=====] - 1s 184us/sample - loss: 0.432

3 - accuracy: 0.7954

Epoch 5/100

6030/6030 [=====] - 1s 187us/sample - loss: 0.430

2 - accuracy: 0.7954

Epoch 6/100

6030/6030 [=====] - 1s 183us/sample - loss: 0.428

6 - accuracy: 0.7954

Epoch 7/100

6030/6030 [=====] - 1s 184us/sample - loss: 0.426

4 - accuracy: 0.7954

Epoch 8/100

6030/6030 [=====] - 1s 183us/sample - loss: 0.424

3 - accuracy: 0.7954

Epoch 9/100

6030/6030 [=====] - 1s 184us/sample - loss: 0.422

2 - accuracy: 0.7997

Epoch 10/100

6030/6030 [=====] - 1s 184us/sample - loss: 0.420

2 - accuracy: 0.8176

Epoch 11/100

6030/6030 [=====] - 1s 184us/sample - loss: 0.419

0 - accuracy: 0.8197

Epoch 12/100

6030/6030 [=====] - 1s 184us/sample - loss: 0.417

8 - accuracy: 0.8206

Epoch 13/100

6030/6030 [=====] - 1s 185us/sample - loss: 0.416

7 - accuracy: 0.8255

Epoch 14/100

6030/6030 [=====] - 1s 194us/sample - loss: 0.415

7 - accuracy: 0.8275

Epoch 15/100

6030/6030 [=====] - 1s 184us/sample - loss: 0.414

8 - accuracy: 0.8287

Epoch 16/100

6030/6030 [=====] - 1s 187us/sample - loss: 0.413

6 - accuracy: 0.8313

Epoch 17/100

6030/6030 [=====] - 1s 186us/sample - loss: 0.413

0 - accuracy: 0.8313

Epoch 18/100

6030/6030 [=====] - 1s 205us/sample - loss: 0.412

0 - accuracy: 0.8307

Epoch 19/100

6030/6030 [=====] - 1s 190us/sample - loss: 0.411

5 - accuracy: 0.8317

Epoch 20/100

6030/6030 [=====] - 1s 188us/sample - loss: 0.410

8 - accuracy: 0.8318

Epoch 21/100  
6030/6030 [=====] - 1s 205us/sample - loss: 0.410  
0 - accuracy: 0.8330

Epoch 22/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.409  
6 - accuracy: 0.8327

Epoch 23/100  
6030/6030 [=====] - 1s 185us/sample - loss: 0.409  
0 - accuracy: 0.8333

Epoch 24/100  
6030/6030 [=====] - 1s 189us/sample - loss: 0.408  
6 - accuracy: 0.8333

Epoch 25/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.407  
8 - accuracy: 0.8337

Epoch 26/100  
6030/6030 [=====] - 1s 191us/sample - loss: 0.407  
4 - accuracy: 0.8342

Epoch 27/100  
6030/6030 [=====] - 1s 221us/sample - loss: 0.407  
2 - accuracy: 0.8327

Epoch 28/100  
6030/6030 [=====] - 1s 228us/sample - loss: 0.406  
6 - accuracy: 0.8327

Epoch 29/100  
6030/6030 [=====] - 1s 203us/sample - loss: 0.406  
5 - accuracy: 0.8337

Epoch 30/100  
6030/6030 [=====] - 1s 176us/sample - loss: 0.406  
1 - accuracy: 0.8332

Epoch 31/100  
6030/6030 [=====] - 1s 174us/sample - loss: 0.405  
7 - accuracy: 0.8348

Epoch 32/100  
6030/6030 [=====] - 1s 194us/sample - loss: 0.405  
5 - accuracy: 0.8327

Epoch 33/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.405  
2 - accuracy: 0.8333

Epoch 34/100  
6030/6030 [=====] - 1s 191us/sample - loss: 0.404  
9 - accuracy: 0.8340

Epoch 35/100  
6030/6030 [=====] - 1s 176us/sample - loss: 0.404  
8 - accuracy: 0.8333

Epoch 36/100  
6030/6030 [=====] - 1s 176us/sample - loss: 0.404  
1 - accuracy: 0.8340

Epoch 37/100  
6030/6030 [=====] - 1s 223us/sample - loss: 0.404  
2 - accuracy: 0.8340

Epoch 38/100  
6030/6030 [=====] - 1s 178us/sample - loss: 0.403  
7 - accuracy: 0.8342

Epoch 39/100  
6030/6030 [=====] - 1s 175us/sample - loss: 0.403  
8 - accuracy: 0.8343

Epoch 40/100  
6030/6030 [=====] - 1s 203us/sample - loss: 0.403  
6 - accuracy: 0.8337

Epoch 41/100

```
6030/6030 [=====] - 1s 194us/sample - loss: 0.403
4 - accuracy: 0.8348
Epoch 42/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.403
2 - accuracy: 0.8338
Epoch 43/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.402
2 - accuracy: 0.8332
Epoch 44/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.402
9 - accuracy: 0.8337
Epoch 45/100
6030/6030 [=====] - 2s 310us/sample - loss: 0.402
6 - accuracy: 0.8320
Epoch 46/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.402
4 - accuracy: 0.8327
Epoch 47/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.402
0 - accuracy: 0.8337
Epoch 48/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.401
7 - accuracy: 0.8338
Epoch 49/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.400
8 - accuracy: 0.8340
Epoch 50/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.400
8 - accuracy: 0.8327
Epoch 51/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.400
4 - accuracy: 0.8352
Epoch 52/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.399
7 - accuracy: 0.8352
Epoch 53/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
6 - accuracy: 0.8320
Epoch 54/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.399
2 - accuracy: 0.8347
Epoch 55/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.398
4 - accuracy: 0.8333
Epoch 56/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.398
0 - accuracy: 0.8343
Epoch 57/100
6030/6030 [=====] - 2s 282us/sample - loss: 0.397
5 - accuracy: 0.8343
Epoch 58/100
6030/6030 [=====] - 2s 266us/sample - loss: 0.397
2 - accuracy: 0.8373
Epoch 59/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.397
4 - accuracy: 0.8335
Epoch 60/100
6030/6030 [=====] - 2s 259us/sample - loss: 0.397
2 - accuracy: 0.8355
Epoch 61/100
6030/6030 [=====] - 2s 252us/sample - loss: 0.396
```

```
7 - accuracy: 0.8348
Epoch 62/100
6030/6030 [=====] - 1s 236us/sample - loss: 0.396
5 - accuracy: 0.8350
Epoch 63/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.395
9 - accuracy: 0.8353
Epoch 64/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.395
7 - accuracy: 0.8358
Epoch 65/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.395
4 - accuracy: 0.8371
Epoch 66/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.395
8 - accuracy: 0.8360
Epoch 67/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.394
8 - accuracy: 0.8350
Epoch 68/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.394
8 - accuracy: 0.8350
Epoch 69/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.394
8 - accuracy: 0.8365
Epoch 70/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.394
9 - accuracy: 0.8347
Epoch 71/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.394
3 - accuracy: 0.8347
Epoch 72/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.394
2 - accuracy: 0.8352
Epoch 73/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.394
0 - accuracy: 0.8365
Epoch 74/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.393
5 - accuracy: 0.8348
Epoch 75/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.393
6 - accuracy: 0.8365
Epoch 76/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.393
4 - accuracy: 0.8370
Epoch 77/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.393
5 - accuracy: 0.8357
Epoch 78/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.393
3 - accuracy: 0.8367
Epoch 79/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.393
3 - accuracy: 0.8371
Epoch 80/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.393
1 - accuracy: 0.8367
Epoch 81/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.392
6 - accuracy: 0.8363
```

```
Epoch 82/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.393
3 - accuracy: 0.8358
Epoch 83/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.393
0 - accuracy: 0.8353
Epoch 84/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.393
0 - accuracy: 0.8375
Epoch 85/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.392
4 - accuracy: 0.8383
Epoch 86/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.392
1 - accuracy: 0.8368
Epoch 87/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.392
7 - accuracy: 0.8345
Epoch 88/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.392
6 - accuracy: 0.8386
Epoch 89/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.392
4 - accuracy: 0.8378
Epoch 90/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.392
1 - accuracy: 0.8380
Epoch 91/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.392
1 - accuracy: 0.8383
Epoch 92/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.392
0 - accuracy: 0.8383
Epoch 93/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.391
7 - accuracy: 0.8362
Epoch 94/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.391
9 - accuracy: 0.8368
Epoch 95/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.391
8 - accuracy: 0.8376
Epoch 96/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.391
9 - accuracy: 0.8357
Epoch 97/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.391
3 - accuracy: 0.8376
Epoch 98/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.392
1 - accuracy: 0.8376
Epoch 99/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.391
7 - accuracy: 0.8381
Epoch 100/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.391
9 - accuracy: 0.8383
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 3s 544us/sample - loss: 0.603
2 - accuracy: 0.7884
```

Epoch 2/100  
6030/6030 [=====] - 1s 211us/sample - loss: 0.450  
2 - accuracy: 0.7910

Epoch 3/100  
6030/6030 [=====] - 1s 212us/sample - loss: 0.439  
2 - accuracy: 0.7910

Epoch 4/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.436  
1 - accuracy: 0.7910

Epoch 5/100  
6030/6030 [=====] - 1s 189us/sample - loss: 0.434  
3 - accuracy: 0.7910

Epoch 6/100  
6030/6030 [=====] - 1s 203us/sample - loss: 0.432  
0 - accuracy: 0.7910

Epoch 7/100  
6030/6030 [=====] - 1s 176us/sample - loss: 0.430  
3 - accuracy: 0.7910

Epoch 8/100  
6030/6030 [=====] - 1s 177us/sample - loss: 0.428  
2 - accuracy: 0.7910

Epoch 9/100  
6030/6030 [=====] - 1s 211us/sample - loss: 0.426  
0 - accuracy: 0.7910

Epoch 10/100  
6030/6030 [=====] - 1s 217us/sample - loss: 0.424  
1 - accuracy: 0.8172

Epoch 11/100  
6030/6030 [=====] - 1s 216us/sample - loss: 0.423  
1 - accuracy: 0.8196

Epoch 12/100  
6030/6030 [=====] - 1s 198us/sample - loss: 0.421  
9 - accuracy: 0.8211

Epoch 13/100  
6030/6030 [=====] - 1s 204us/sample - loss: 0.421  
1 - accuracy: 0.8226 - loss: 0.4213 - accuracy

Epoch 14/100  
6030/6030 [=====] - 1s 203us/sample - loss: 0.420  
1 - accuracy: 0.8231

Epoch 15/100  
6030/6030 [=====] - 1s 224us/sample - loss: 0.419  
4 - accuracy: 0.8259

Epoch 16/100  
6030/6030 [=====] - 1s 192us/sample - loss: 0.418  
6 - accuracy: 0.8272

Epoch 17/100  
6030/6030 [=====] - 1s 206us/sample - loss: 0.417  
9 - accuracy: 0.8255

Epoch 18/100  
6030/6030 [=====] - 1s 171us/sample - loss: 0.417  
4 - accuracy: 0.8269

Epoch 19/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.416  
7 - accuracy: 0.8272

Epoch 20/100  
6030/6030 [=====] - 1s 200us/sample - loss: 0.416  
1 - accuracy: 0.8269

Epoch 21/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.415  
4 - accuracy: 0.8287

Epoch 22/100

```
6030/6030 [=====] - 1s 208us/sample - loss: 0.415
4 - accuracy: 0.8282
Epoch 23/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.414
5 - accuracy: 0.8289
Epoch 24/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.414
2 - accuracy: 0.8280 -
Epoch 25/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.413
6 - accuracy: 0.8299
Epoch 26/100
6030/6030 [=====] - 1s 238us/sample - loss: 0.413
5 - accuracy: 0.8307 - loss: 0.4153 - ac
Epoch 27/100
6030/6030 [=====] - 1s 240us/sample - loss: 0.413
1 - accuracy: 0.8292
Epoch 28/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.412
7 - accuracy: 0.8302
Epoch 29/100
6030/6030 [=====] - 2s 265us/sample - loss: 0.412
4 - accuracy: 0.8308
Epoch 30/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.412
2 - accuracy: 0.8297
Epoch 31/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.412
0 - accuracy: 0.8303
Epoch 32/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.411
2 - accuracy: 0.8295
Epoch 33/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.410
9 - accuracy: 0.8299
Epoch 34/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.411
0 - accuracy: 0.8300
Epoch 35/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.410
6 - accuracy: 0.8308
Epoch 36/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.410
7 - accuracy: 0.8290
Epoch 37/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.410
1 - accuracy: 0.8315
Epoch 38/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.410
2 - accuracy: 0.8297
Epoch 39/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.409
8 - accuracy: 0.8312
Epoch 40/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.409
6 - accuracy: 0.8295
Epoch 41/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.409
3 - accuracy: 0.8300
Epoch 42/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.409
```

```
6 - accuracy: 0.8289
Epoch 43/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.409
3 - accuracy: 0.8312
Epoch 44/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.409
2 - accuracy: 0.8299
Epoch 45/100
6030/6030 [=====] - 1s 218us/sample - loss: 0.409
0 - accuracy: 0.8300
Epoch 46/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.408
8 - accuracy: 0.8305
Epoch 47/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.408
5 - accuracy: 0.8299
Epoch 48/100
6030/6030 [=====] - 1s 216us/sample - loss: 0.408
5 - accuracy: 0.8305
Epoch 49/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.408
4 - accuracy: 0.8312
Epoch 50/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.408
3 - accuracy: 0.8294
Epoch 51/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.408
3 - accuracy: 0.8317
Epoch 52/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.408
2 - accuracy: 0.8299
Epoch 53/100
6030/6030 [=====] - 2s 302us/sample - loss: 0.407
9 - accuracy: 0.8303
Epoch 54/100
6030/6030 [=====] - 2s 278us/sample - loss: 0.408
1 - accuracy: 0.8305
Epoch 55/100
6030/6030 [=====] - 2s 306us/sample - loss: 0.407
9 - accuracy: 0.8308
Epoch 56/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.407
5 - accuracy: 0.8312
Epoch 57/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.407
3 - accuracy: 0.8312
Epoch 58/100
6030/6030 [=====] - 1s 230us/sample - loss: 0.407
6 - accuracy: 0.8312
Epoch 59/100
6030/6030 [=====] - 2s 379us/sample - loss: 0.407
3 - accuracy: 0.8310
Epoch 60/100
6030/6030 [=====] - 2s 285us/sample - loss: 0.407
4 - accuracy: 0.8317
Epoch 61/100
6030/6030 [=====] - 2s 311us/sample - loss: 0.407
3 - accuracy: 0.8305
Epoch 62/100
6030/6030 [=====] - 2s 387us/sample - loss: 0.407
3 - accuracy: 0.8323
```



Epoch 63/100  
6030/6030 [=====] - 2s 322us/sample - loss: 0.406  
9 - accuracy: 0.8313

Epoch 64/100  
6030/6030 [=====] - 2s 384us/sample - loss: 0.406  
6 - accuracy: 0.8310

Epoch 65/100  
6030/6030 [=====] - 2s 280us/sample - loss: 0.406  
9 - accuracy: 0.8297

Epoch 66/100  
6030/6030 [=====] - 2s 301us/sample - loss: 0.406  
9 - accuracy: 0.8305

Epoch 67/100  
6030/6030 [=====] - 1s 230us/sample - loss: 0.406  
4 - accuracy: 0.8318

Epoch 68/100  
6030/6030 [=====] - 1s 193us/sample - loss: 0.406  
7 - accuracy: 0.8318

Epoch 69/100  
6030/6030 [=====] - 2s 344us/sample - loss: 0.406  
2 - accuracy: 0.8303

Epoch 70/100  
6030/6030 [=====] - 2s 335us/sample - loss: 0.406  
5 - accuracy: 0.8317

Epoch 71/100  
6030/6030 [=====] - 2s 266us/sample - loss: 0.406  
1 - accuracy: 0.8328

Epoch 72/100  
6030/6030 [=====] - 1s 244us/sample - loss: 0.406  
3 - accuracy: 0.8317

Epoch 73/100  
6030/6030 [=====] - 1s 230us/sample - loss: 0.405  
8 - accuracy: 0.8332

Epoch 74/100  
6030/6030 [=====] - 1s 202us/sample - loss: 0.405  
8 - accuracy: 0.8313

Epoch 75/100  
6030/6030 [=====] - 1s 205us/sample - loss: 0.405  
6 - accuracy: 0.8322

Epoch 76/100  
6030/6030 [=====] - 1s 203us/sample - loss: 0.405  
7 - accuracy: 0.8317

Epoch 77/100  
6030/6030 [=====] - 1s 189us/sample - loss: 0.405  
8 - accuracy: 0.8323

Epoch 78/100  
6030/6030 [=====] - 1s 194us/sample - loss: 0.405  
3 - accuracy: 0.8317

Epoch 79/100  
6030/6030 [=====] - 1s 240us/sample - loss: 0.404  
8 - accuracy: 0.8302

Epoch 80/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.404  
6 - accuracy: 0.8313

Epoch 81/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.404  
6 - accuracy: 0.8310

Epoch 82/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.403  
8 - accuracy: 0.8318

Epoch 83/100

```
6030/6030 [=====] - 2s 254us/sample - loss: 0.403
8 - accuracy: 0.8303
Epoch 84/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.403
5 - accuracy: 0.8300
Epoch 85/100
6030/6030 [=====] - 2s 254us/sample - loss: 0.403
6 - accuracy: 0.8300
Epoch 86/100
6030/6030 [=====] - 1s 247us/sample - loss: 0.403
0 - accuracy: 0.8318
Epoch 87/100
6030/6030 [=====] - 2s 308us/sample - loss: 0.402
8 - accuracy: 0.8305
Epoch 88/100
6030/6030 [=====] - 2s 281us/sample - loss: 0.402
7 - accuracy: 0.8313
Epoch 89/100
6030/6030 [=====] - 1s 221us/sample - loss: 0.402
3 - accuracy: 0.8317
Epoch 90/100
6030/6030 [=====] - 2s 302us/sample - loss: 0.402
2 - accuracy: 0.8313
Epoch 91/100
6030/6030 [=====] - 2s 297us/sample - loss: 0.401
8 - accuracy: 0.8292
Epoch 92/100
6030/6030 [=====] - 2s 295us/sample - loss: 0.401
5 - accuracy: 0.8287
Epoch 93/100
6030/6030 [=====] - 2s 275us/sample - loss: 0.401
4 - accuracy: 0.8299
Epoch 94/100
6030/6030 [=====] - 2s 255us/sample - loss: 0.401
1 - accuracy: 0.8302
Epoch 95/100
6030/6030 [=====] - 1s 216us/sample - loss: 0.401
0 - accuracy: 0.8310
Epoch 96/100
6030/6030 [=====] - 1s 222us/sample - loss: 0.400
8 - accuracy: 0.8313
Epoch 97/100
6030/6030 [=====] - 2s 258us/sample - loss: 0.400
9 - accuracy: 0.8299
Epoch 98/100
6030/6030 [=====] - 2s 293us/sample - loss: 0.399
9 - accuracy: 0.8303
Epoch 99/100
6030/6030 [=====] - 2s 312us/sample - loss: 0.400
1 - accuracy: 0.8310
Epoch 100/100
6030/6030 [=====] - 2s 278us/sample - loss: 0.400
1 - accuracy: 0.8302
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 5s 805us/sample - loss: 0.598
6 - accuracy: 0.7932
Epoch 2/100
6030/6030 [=====] - 2s 298us/sample - loss: 0.444
0 - accuracy: 0.7935
Epoch 3/100
```

```
6030/6030 [=====] - 2s 327us/sample - loss: 0.435
9 - accuracy: 0.7935
Epoch 4/100
6030/6030 [=====] - 2s 296us/sample - loss: 0.433
1 - accuracy: 0.7935
Epoch 5/100
6030/6030 [=====] - 1s 229us/sample - loss: 0.431
4 - accuracy: 0.7935
Epoch 6/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.429
6 - accuracy: 0.7935
Epoch 7/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.427
5 - accuracy: 0.7935
Epoch 8/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.425
4 - accuracy: 0.7935
Epoch 9/100
6030/6030 [=====] - 2s 272us/sample - loss: 0.423
3 - accuracy: 0.8098
Epoch 10/100
6030/6030 [=====] - 2s 284us/sample - loss: 0.421
8 - accuracy: 0.8171
Epoch 11/100
6030/6030 [=====] - 1s 244us/sample - loss: 0.420
3 - accuracy: 0.8204
Epoch 12/100
6030/6030 [=====] - 1s 247us/sample - loss: 0.418
8 - accuracy: 0.8235
Epoch 13/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.418
1 - accuracy: 0.8275
Epoch 14/100
6030/6030 [=====] - 1s 235us/sample - loss: 0.417
2 - accuracy: 0.8294
Epoch 15/100
6030/6030 [=====] - 1s 230us/sample - loss: 0.415
7 - accuracy: 0.8295
Epoch 16/100
6030/6030 [=====] - 1s 244us/sample - loss: 0.415
0 - accuracy: 0.8297
Epoch 17/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.413
8 - accuracy: 0.8323
Epoch 18/100
6030/6030 [=====] - 1s 234us/sample - loss: 0.413
5 - accuracy: 0.8315
Epoch 19/100
6030/6030 [=====] - 1s 226us/sample - loss: 0.412
5 - accuracy: 0.8327
Epoch 20/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.411
7 - accuracy: 0.8315
Epoch 21/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.411
2 - accuracy: 0.8313
Epoch 22/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.410
5 - accuracy: 0.8327
Epoch 23/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.409
```

```
8 - accuracy: 0.8338
Epoch 24/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.409
8 - accuracy: 0.8315
Epoch 25/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.409
0 - accuracy: 0.8330
Epoch 26/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.408
6 - accuracy: 0.8327
Epoch 27/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.408
5 - accuracy: 0.8340
Epoch 28/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.408
1 - accuracy: 0.8322
Epoch 29/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.407
7 - accuracy: 0.8328
Epoch 30/100
6030/6030 [=====] - 1s 236us/sample - loss: 0.407
2 - accuracy: 0.8332
Epoch 31/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.406
9 - accuracy: 0.8343
Epoch 32/100
6030/6030 [=====] - 1s 230us/sample - loss: 0.406
7 - accuracy: 0.8323
Epoch 33/100
6030/6030 [=====] - 1s 230us/sample - loss: 0.406
3 - accuracy: 0.8357
Epoch 34/100
6030/6030 [=====] - 2s 259us/sample - loss: 0.406
0 - accuracy: 0.8338
Epoch 35/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.405
7 - accuracy: 0.8337
Epoch 36/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.405
8 - accuracy: 0.8327
Epoch 37/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.405
3 - accuracy: 0.8340
Epoch 38/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.404
9 - accuracy: 0.8338
Epoch 39/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.404
9 - accuracy: 0.8343
Epoch 40/100
6030/6030 [=====] - 1s 246us/sample - loss: 0.404
8 - accuracy: 0.8350
Epoch 41/100
6030/6030 [=====] - 2s 264us/sample - loss: 0.404
6 - accuracy: 0.8345
Epoch 42/100
6030/6030 [=====] - 2s 251us/sample - loss: 0.404
2 - accuracy: 0.8333
Epoch 43/100
6030/6030 [=====] - 2s 277us/sample - loss: 0.404
1 - accuracy: 0.8338
```

Epoch 44/100  
6030/6030 [=====] - 2s 289us/sample - loss: 0.404  
0 - accuracy: 0.8335

Epoch 45/100  
6030/6030 [=====] - 2s 282us/sample - loss: 0.403  
6 - accuracy: 0.8347

Epoch 46/100  
6030/6030 [=====] - 1s 243us/sample - loss: 0.403  
0 - accuracy: 0.8337

Epoch 47/100  
6030/6030 [=====] - 2s 264us/sample - loss: 0.403  
2 - accuracy: 0.8333

Epoch 48/100  
6030/6030 [=====] - 2s 272us/sample - loss: 0.402  
5 - accuracy: 0.8348

Epoch 49/100  
6030/6030 [=====] - 1s 238us/sample - loss: 0.402  
2 - accuracy: 0.8347

Epoch 50/100  
6030/6030 [=====] - 1s 200us/sample - loss: 0.402  
1 - accuracy: 0.8338

Epoch 51/100  
6030/6030 [=====] - 1s 225us/sample - loss: 0.401  
5 - accuracy: 0.8338

Epoch 52/100  
6030/6030 [=====] - 2s 329us/sample - loss: 0.400  
8 - accuracy: 0.8353

Epoch 53/100  
6030/6030 [=====] - 2s 257us/sample - loss: 0.400  
8 - accuracy: 0.8342

Epoch 54/100  
6030/6030 [=====] - 1s 211us/sample - loss: 0.400  
6 - accuracy: 0.8343

Epoch 55/100  
6030/6030 [=====] - 1s 202us/sample - loss: 0.400  
5 - accuracy: 0.8342

Epoch 56/100  
6030/6030 [=====] - 1s 217us/sample - loss: 0.400  
8 - accuracy: 0.8338

Epoch 57/100  
6030/6030 [=====] - 2s 278us/sample - loss: 0.400  
0 - accuracy: 0.8353

Epoch 58/100  
6030/6030 [=====] - 2s 285us/sample - loss: 0.399  
8 - accuracy: 0.8342

Epoch 59/100  
6030/6030 [=====] - 2s 268us/sample - loss: 0.399  
7 - accuracy: 0.8355

Epoch 60/100  
6030/6030 [=====] - 2s 283us/sample - loss: 0.399  
4 - accuracy: 0.8355

Epoch 61/100  
6030/6030 [=====] - 1s 205us/sample - loss: 0.399  
0 - accuracy: 0.8365

Epoch 62/100  
6030/6030 [=====] - 1s 200us/sample - loss: 0.398  
9 - accuracy: 0.8352

Epoch 63/100  
6030/6030 [=====] - 2s 287us/sample - loss: 0.398  
9 - accuracy: 0.8345

Epoch 64/100

```
6030/6030 [=====] - 1s 215us/sample - loss: 0.398
7 - accuracy: 0.8347
Epoch 65/100
6030/6030 [=====] - 1s 244us/sample - loss: 0.399
1 - accuracy: 0.8358
Epoch 66/100
6030/6030 [=====] - 1s 230us/sample - loss: 0.398
9 - accuracy: 0.8345
Epoch 67/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.398
3 - accuracy: 0.8357
Epoch 68/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.398
2 - accuracy: 0.8345
Epoch 69/100
6030/6030 [=====] - 1s 167us/sample - loss: 0.398
5 - accuracy: 0.8357
Epoch 70/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.398
1 - accuracy: 0.8342
Epoch 71/100
6030/6030 [=====] - 1s 166us/sample - loss: 0.398
1 - accuracy: 0.8348
Epoch 72/100
6030/6030 [=====] - 1s 166us/sample - loss: 0.398
2 - accuracy: 0.8360
Epoch 73/100
6030/6030 [=====] - 1s 166us/sample - loss: 0.397
8 - accuracy: 0.8355
Epoch 74/100
6030/6030 [=====] - 1s 167us/sample - loss: 0.397
9 - accuracy: 0.8368
Epoch 75/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.397
4 - accuracy: 0.8345
Epoch 76/100
6030/6030 [=====] - 1s 232us/sample - loss: 0.397
7 - accuracy: 0.8338
Epoch 77/100
6030/6030 [=====] - 2s 258us/sample - loss: 0.397
3 - accuracy: 0.8362
Epoch 78/100
6030/6030 [=====] - 2s 273us/sample - loss: 0.396
7 - accuracy: 0.8371
Epoch 79/100
6030/6030 [=====] - 1s 234us/sample - loss: 0.398
0 - accuracy: 0.8358
Epoch 80/100
6030/6030 [=====] - 1s 234us/sample - loss: 0.397
4 - accuracy: 0.8362
Epoch 81/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.396
9 - accuracy: 0.8347
Epoch 82/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.397
4 - accuracy: 0.8347
Epoch 83/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.396
6 - accuracy: 0.8343
Epoch 84/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.396
```

```
7 - accuracy: 0.8368
Epoch 85/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.396
8 - accuracy: 0.8362
Epoch 86/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.396
4 - accuracy: 0.8360
Epoch 87/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.396
6 - accuracy: 0.8358
Epoch 88/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.396
7 - accuracy: 0.8352
Epoch 89/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.396
2 - accuracy: 0.8352
Epoch 90/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.396
7 - accuracy: 0.8371
Epoch 91/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.396
3 - accuracy: 0.8365
Epoch 92/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.395
9 - accuracy: 0.8371
Epoch 93/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.396
5 - accuracy: 0.8358 - 1
Epoch 94/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
6 - accuracy: 0.8360
Epoch 95/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.396
3 - accuracy: 0.8375
Epoch 96/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.396
0 - accuracy: 0.8371
Epoch 97/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.396
1 - accuracy: 0.8373
Epoch 98/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.396
0 - accuracy: 0.8375
Epoch 99/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.396
1 - accuracy: 0.8373
Epoch 100/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.395
5 - accuracy: 0.8370
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 297us/sample - loss: 0.571
3 - accuracy: 0.7922
Epoch 2/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.444
7 - accuracy: 0.7925
Epoch 3/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.437
9 - accuracy: 0.7925
Epoch 4/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.433
```

```
4 - accuracy: 0.7925
Epoch 5/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.430
3 - accuracy: 0.7925
Epoch 6/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.427
2 - accuracy: 0.7925
Epoch 7/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.424
9 - accuracy: 0.8144
Epoch 8/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.423
7 - accuracy: 0.8181
Epoch 9/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.422
3 - accuracy: 0.8224
Epoch 10/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.421
2 - accuracy: 0.8237
Epoch 11/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.420
2 - accuracy: 0.8259
Epoch 12/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.419
4 - accuracy: 0.8255
Epoch 13/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.418
8 - accuracy: 0.8280
Epoch 14/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.418
3 - accuracy: 0.8277
Epoch 15/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.417
9 - accuracy: 0.8303
Epoch 16/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.416
7 - accuracy: 0.8300
Epoch 17/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.416
3 - accuracy: 0.8310
Epoch 18/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.415
4 - accuracy: 0.8320
Epoch 19/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.414
8 - accuracy: 0.8300
Epoch 20/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.414
6 - accuracy: 0.8299
Epoch 21/100
6030/6030 [=====] - 1s 226us/sample - loss: 0.414
6 - accuracy: 0.8303
Epoch 22/100
6030/6030 [=====] - 1s 220us/sample - loss: 0.413
5 - accuracy: 0.8322
Epoch 23/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.413
9 - accuracy: 0.8300
Epoch 24/100
6030/6030 [=====] - 1s 221us/sample - loss: 0.413
0 - accuracy: 0.8307
```



Epoch 25/100  
6030/6030 [=====] - 2s 256us/sample - loss: 0.413  
0 - accuracy: 0.8308

Epoch 26/100  
6030/6030 [=====] - 2s 301us/sample - loss: 0.412  
3 - accuracy: 0.8315

Epoch 27/100  
6030/6030 [=====] - 2s 304us/sample - loss: 0.412  
3 - accuracy: 0.8313

Epoch 28/100  
6030/6030 [=====] - 2s 287us/sample - loss: 0.412  
1 - accuracy: 0.8305

Epoch 29/100  
6030/6030 [=====] - 2s 259us/sample - loss: 0.411  
7 - accuracy: 0.8310

Epoch 30/100  
6030/6030 [=====] - 2s 252us/sample - loss: 0.411  
3 - accuracy: 0.8305

Epoch 31/100  
6030/6030 [=====] - 2s 276us/sample - loss: 0.411  
1 - accuracy: 0.8305

Epoch 32/100  
6030/6030 [=====] - 2s 261us/sample - loss: 0.410  
8 - accuracy: 0.8305

Epoch 33/100  
6030/6030 [=====] - 2s 284us/sample - loss: 0.410  
8 - accuracy: 0.8305

Epoch 34/100  
6030/6030 [=====] - 1s 237us/sample - loss: 0.410  
7 - accuracy: 0.8300

Epoch 35/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.410  
5 - accuracy: 0.8302

Epoch 36/100  
6030/6030 [=====] - 1s 197us/sample - loss: 0.410  
1 - accuracy: 0.8308

Epoch 37/100  
6030/6030 [=====] - 1s 210us/sample - loss: 0.410  
4 - accuracy: 0.8300

Epoch 38/100  
6030/6030 [=====] - 1s 231us/sample - loss: 0.410  
3 - accuracy: 0.8308

Epoch 39/100  
6030/6030 [=====] - 1s 235us/sample - loss: 0.409  
7 - accuracy: 0.8294

Epoch 40/100  
6030/6030 [=====] - 1s 223us/sample - loss: 0.409  
6 - accuracy: 0.8297

Epoch 41/100  
6030/6030 [=====] - 2s 265us/sample - loss: 0.409  
6 - accuracy: 0.8323 - loss: 0

Epoch 42/100  
6030/6030 [=====] - 1s 223us/sample - loss: 0.409  
3 - accuracy: 0.8303

Epoch 43/100  
6030/6030 [=====] - 1s 211us/sample - loss: 0.409  
2 - accuracy: 0.8312

Epoch 44/100  
6030/6030 [=====] - 1s 217us/sample - loss: 0.409  
2 - accuracy: 0.8300

Epoch 45/100

```
6030/6030 [=====] - 1s 184us/sample - loss: 0.408
8 - accuracy: 0.8310
Epoch 46/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.409
0 - accuracy: 0.8303
Epoch 47/100
6030/6030 [=====] - 1s 218us/sample - loss: 0.408
7 - accuracy: 0.8295
Epoch 48/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.408
3 - accuracy: 0.8305
Epoch 49/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.408
0 - accuracy: 0.8305
Epoch 50/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.408
2 - accuracy: 0.8313
Epoch 51/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.408
4 - accuracy: 0.8299
Epoch 52/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.408
0 - accuracy: 0.8320
Epoch 53/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.407
9 - accuracy: 0.8297
Epoch 54/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.407
8 - accuracy: 0.8289
Epoch 55/100
6030/6030 [=====] - 1s 222us/sample - loss: 0.406
6 - accuracy: 0.8307
Epoch 56/100
6030/6030 [=====] - 1s 220us/sample - loss: 0.407
9 - accuracy: 0.8302
Epoch 57/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.407
3 - accuracy: 0.8282
Epoch 58/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.407
0 - accuracy: 0.8294
Epoch 59/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.407
3 - accuracy: 0.8285
Epoch 60/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.407
1 - accuracy: 0.8303
Epoch 61/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.407
3 - accuracy: 0.8290
Epoch 62/100
6030/6030 [=====] - 1s 167us/sample - loss: 0.407
0 - accuracy: 0.8297
Epoch 63/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.407
1 - accuracy: 0.8297
Epoch 64/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.406
7 - accuracy: 0.8310
Epoch 65/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.406
```

```
7 - accuracy: 0.8290
Epoch 66/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.406
8 - accuracy: 0.8310
Epoch 67/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.406
9 - accuracy: 0.8292
Epoch 68/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.406
5 - accuracy: 0.8305
Epoch 69/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.406
5 - accuracy: 0.8284
Epoch 70/100
6030/6030 [=====] - 1s 232us/sample - loss: 0.406
6 - accuracy: 0.8303
Epoch 71/100
6030/6030 [=====] - 1s 230us/sample - loss: 0.406
4 - accuracy: 0.8295
Epoch 72/100
6030/6030 [=====] - 1s 229us/sample - loss: 0.406
4 - accuracy: 0.8313
Epoch 73/100
6030/6030 [=====] - 1s 218us/sample - loss: 0.406
3 - accuracy: 0.8312
Epoch 74/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.405
9 - accuracy: 0.8307
Epoch 75/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.405
8 - accuracy: 0.8300
Epoch 76/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.406
1 - accuracy: 0.8300
Epoch 77/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.406
0 - accuracy: 0.8300
Epoch 78/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.405
9 - accuracy: 0.8310
Epoch 79/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.406
1 - accuracy: 0.8294
Epoch 80/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.405
8 - accuracy: 0.8295
Epoch 81/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.405
7 - accuracy: 0.8295
Epoch 82/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.405
8 - accuracy: 0.8285
Epoch 83/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.405
8 - accuracy: 0.8313
Epoch 84/100
6030/6030 [=====] - 1s 167us/sample - loss: 0.405
5 - accuracy: 0.8292
Epoch 85/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.405
4 - accuracy: 0.8307
```

Epoch 86/100  
6030/6030 [=====] - 1s 170us/sample - loss: 0.405  
0 - accuracy: 0.8290

Epoch 87/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.405  
9 - accuracy: 0.8297

Epoch 88/100  
6030/6030 [=====] - 1s 231us/sample - loss: 0.406  
0 - accuracy: 0.8308

Epoch 89/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.405  
2 - accuracy: 0.8308

Epoch 90/100  
6030/6030 [=====] - 1s 209us/sample - loss: 0.405  
5 - accuracy: 0.8292

Epoch 91/100  
6030/6030 [=====] - 2s 271us/sample - loss: 0.405  
4 - accuracy: 0.8297

Epoch 92/100  
6030/6030 [=====] - 2s 302us/sample - loss: 0.405  
3 - accuracy: 0.8294

Epoch 93/100  
6030/6030 [=====] - 2s 306us/sample - loss: 0.405  
0 - accuracy: 0.8307

Epoch 94/100  
6030/6030 [=====] - 1s 238us/sample - loss: 0.405  
4 - accuracy: 0.8292

Epoch 95/100  
6030/6030 [=====] - 2s 263us/sample - loss: 0.405  
0 - accuracy: 0.8280

Epoch 96/100  
6030/6030 [=====] - 2s 257us/sample - loss: 0.405  
4 - accuracy: 0.8295

Epoch 97/100  
6030/6030 [=====] - 2s 268us/sample - loss: 0.405  
2 - accuracy: 0.8307

Epoch 98/100  
6030/6030 [=====] - 2s 256us/sample - loss: 0.405  
2 - accuracy: 0.8308

Epoch 99/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.405  
1 - accuracy: 0.8285

Epoch 100/100  
6030/6030 [=====] - 1s 173us/sample - loss: 0.405  
3 - accuracy: 0.8307

Train on 6030 samples

Epoch 1/100  
6030/6030 [=====] - 3s 426us/sample - loss: 0.594  
2 - accuracy: 0.7872

Epoch 2/100  
6030/6030 [=====] - 1s 167us/sample - loss: 0.453  
9 - accuracy: 0.7877

Epoch 3/100  
6030/6030 [=====] - 1s 184us/sample - loss: 0.445  
6 - accuracy: 0.7877

Epoch 4/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.442  
8 - accuracy: 0.7877

Epoch 5/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.440  
4 - accuracy: 0.7877

Epoch 6/100  
6030/6030 [=====] - 1s 177us/sample - loss: 0.438  
1 - accuracy: 0.7877

Epoch 7/100  
6030/6030 [=====] - 1s 179us/sample - loss: 0.435  
4 - accuracy: 0.7877

Epoch 8/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.433  
0 - accuracy: 0.7967

Epoch 9/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.430  
8 - accuracy: 0.8159

Epoch 10/100  
6030/6030 [=====] - 1s 174us/sample - loss: 0.429  
3 - accuracy: 0.8191

Epoch 11/100  
6030/6030 [=====] - 1s 200us/sample - loss: 0.427  
7 - accuracy: 0.8219

Epoch 12/100  
6030/6030 [=====] - 2s 280us/sample - loss: 0.426  
8 - accuracy: 0.8234

Epoch 13/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.425  
7 - accuracy: 0.8249

Epoch 14/100  
6030/6030 [=====] - 1s 190us/sample - loss: 0.424  
9 - accuracy: 0.8272

Epoch 15/100  
6030/6030 [=====] - 1s 179us/sample - loss: 0.424  
0 - accuracy: 0.8274

Epoch 16/100  
6030/6030 [=====] - 1s 202us/sample - loss: 0.423  
4 - accuracy: 0.8282 -

Epoch 17/100  
6030/6030 [=====] - 1s 176us/sample - loss: 0.422  
6 - accuracy: 0.8264

Epoch 18/100  
6030/6030 [=====] - 1s 169us/sample - loss: 0.421  
6 - accuracy: 0.8282

Epoch 19/100  
6030/6030 [=====] - 1s 194us/sample - loss: 0.421  
4 - accuracy: 0.8277

Epoch 20/100  
6030/6030 [=====] - 1s 174us/sample - loss: 0.420  
7 - accuracy: 0.8295

Epoch 21/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.420  
3 - accuracy: 0.8284

Epoch 22/100  
6030/6030 [=====] - 1s 178us/sample - loss: 0.419  
8 - accuracy: 0.8275

Epoch 23/100  
6030/6030 [=====] - 1s 174us/sample - loss: 0.418  
9 - accuracy: 0.8307

Epoch 24/100  
6030/6030 [=====] - 1s 185us/sample - loss: 0.418  
6 - accuracy: 0.8284

Epoch 25/100  
6030/6030 [=====] - 1s 214us/sample - loss: 0.417  
9 - accuracy: 0.8284

Epoch 26/100

```
6030/6030 [=====] - 1s 183us/sample - loss: 0.418
0 - accuracy: 0.8290
Epoch 27/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.417
5 - accuracy: 0.8295
Epoch 28/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.416
9 - accuracy: 0.8287
Epoch 29/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.416
6 - accuracy: 0.8290
Epoch 30/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.416
2 - accuracy: 0.8292
Epoch 31/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.415
9 - accuracy: 0.8294
Epoch 32/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.416
1 - accuracy: 0.8299
Epoch 33/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.415
7 - accuracy: 0.8302
Epoch 34/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.415
2 - accuracy: 0.8299
Epoch 35/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.415
3 - accuracy: 0.8299
Epoch 36/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.414
8 - accuracy: 0.8290
Epoch 37/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.414
8 - accuracy: 0.8299
Epoch 38/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.414
7 - accuracy: 0.8280
Epoch 39/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.414
2 - accuracy: 0.8289
Epoch 40/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.414
1 - accuracy: 0.8279
Epoch 41/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.413
7 - accuracy: 0.8294
Epoch 42/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.414
1 - accuracy: 0.8310
Epoch 43/100
6030/6030 [=====] - 2s 272us/sample - loss: 0.413
8 - accuracy: 0.8294
Epoch 44/100
6030/6030 [=====] - 2s 266us/sample - loss: 0.413
3 - accuracy: 0.8299
Epoch 45/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.413
4 - accuracy: 0.8295
Epoch 46/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.413
```

```
2 - accuracy: 0.8307
Epoch 47/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.412
8 - accuracy: 0.8297
Epoch 48/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.412
9 - accuracy: 0.8292
Epoch 49/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.412
5 - accuracy: 0.8294
Epoch 50/100
6030/6030 [=====] - 2s 258us/sample - loss: 0.412
8 - accuracy: 0.8289
Epoch 51/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.412
5 - accuracy: 0.8299
Epoch 52/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.412
3 - accuracy: 0.8305
Epoch 53/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.412
3 - accuracy: 0.8282 - loss: 0.4062 - ac
Epoch 54/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.412
0 - accuracy: 0.8305
Epoch 55/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.412
2 - accuracy: 0.8303
Epoch 56/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.411
9 - accuracy: 0.8303
Epoch 57/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.412
0 - accuracy: 0.8305
Epoch 58/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.411
7 - accuracy: 0.8317
Epoch 59/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.411
6 - accuracy: 0.8300
Epoch 60/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.411
6 - accuracy: 0.8307
Epoch 61/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.411
9 - accuracy: 0.8312
Epoch 62/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.411
5 - accuracy: 0.8315
Epoch 63/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.411
0 - accuracy: 0.8303
Epoch 64/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.411
3 - accuracy: 0.8310
Epoch 65/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.411
0 - accuracy: 0.8308
Epoch 66/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.411
1 - accuracy: 0.8305
```

Epoch 67/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.410  
9 - accuracy: 0.8315  
Epoch 68/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.410  
8 - accuracy: 0.8305  
Epoch 69/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.410  
9 - accuracy: 0.8305  
Epoch 70/100  
6030/6030 [=====] - 1s 205us/sample - loss: 0.410  
6 - accuracy: 0.8315  
Epoch 71/100  
6030/6030 [=====] - 1s 201us/sample - loss: 0.410  
6 - accuracy: 0.8318  
Epoch 72/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.410  
6 - accuracy: 0.8323  
Epoch 73/100  
6030/6030 [=====] - 1s 184us/sample - loss: 0.410  
6 - accuracy: 0.8305  
Epoch 74/100  
6030/6030 [=====] - 1s 216us/sample - loss: 0.410  
7 - accuracy: 0.8300  
Epoch 75/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.410  
6 - accuracy: 0.8315  
Epoch 76/100  
6030/6030 [=====] - 1s 213us/sample - loss: 0.410  
4 - accuracy: 0.8307  
Epoch 77/100  
6030/6030 [=====] - 1s 219us/sample - loss: 0.410  
4 - accuracy: 0.8318  
Epoch 78/100  
6030/6030 [=====] - 1s 208us/sample - loss: 0.410  
5 - accuracy: 0.8307  
Epoch 79/100  
6030/6030 [=====] - 1s 193us/sample - loss: 0.410  
2 - accuracy: 0.8322  
Epoch 80/100  
6030/6030 [=====] - 1s 193us/sample - loss: 0.410  
7 - accuracy: 0.8313  
Epoch 81/100  
6030/6030 [=====] - 1s 174us/sample - loss: 0.410  
1 - accuracy: 0.8310  
Epoch 82/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.410  
2 - accuracy: 0.8303  
Epoch 83/100  
6030/6030 [=====] - 1s 193us/sample - loss: 0.410  
0 - accuracy: 0.8307  
Epoch 84/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.410  
3 - accuracy: 0.8305  
Epoch 85/100  
6030/6030 [=====] - 1s 173us/sample - loss: 0.410  
1 - accuracy: 0.8308  
Epoch 86/100  
6030/6030 [=====] - 1s 192us/sample - loss: 0.410  
2 - accuracy: 0.8317  
Epoch 87/100



```
6030/6030 [=====] - 1s 189us/sample - loss: 0.409
9 - accuracy: 0.8323
Epoch 88/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.410
4 - accuracy: 0.8317
Epoch 89/100
6030/6030 [=====] - 1s 220us/sample - loss: 0.410
2 - accuracy: 0.8307
Epoch 90/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.409
9 - accuracy: 0.8302
Epoch 91/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.410
2 - accuracy: 0.8313 - loss: 0.4122 - accuracy
Epoch 92/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.409
6 - accuracy: 0.8313
Epoch 93/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.410
0 - accuracy: 0.8320
Epoch 94/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.409
9 - accuracy: 0.8312
Epoch 95/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.410
0 - accuracy: 0.8313
Epoch 96/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.409
9 - accuracy: 0.8310
Epoch 97/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.409
8 - accuracy: 0.8315
Epoch 98/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.409
9 - accuracy: 0.8318
Epoch 99/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.410
0 - accuracy: 0.8330
Epoch 100/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.409
7 - accuracy: 0.8307
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 14s 2ms/sample - loss: 0.5765
- accuracy: 0.7907
Epoch 2/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.445
6 - accuracy: 0.7912
Epoch 3/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.438
7 - accuracy: 0.7912
Epoch 4/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.434
0 - accuracy: 0.7912
Epoch 5/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.429
7 - accuracy: 0.7949
Epoch 6/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.425
5 - accuracy: 0.8194
Epoch 7/100
```

```
6030/6030 [=====] - 1s 176us/sample - loss: 0.421
9 - accuracy: 0.8239
Epoch 8/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.419
1 - accuracy: 0.8267
Epoch 9/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.416
8 - accuracy: 0.8280
Epoch 10/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.414
8 - accuracy: 0.8294
Epoch 11/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.413
7 - accuracy: 0.8284
Epoch 12/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.412
1 - accuracy: 0.8299
Epoch 13/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.410
7 - accuracy: 0.8290
Epoch 14/100
6030/6030 [=====] - 1s 165us/sample - loss: 0.410
2 - accuracy: 0.8290
Epoch 15/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.409
3 - accuracy: 0.8267
Epoch 16/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.408
7 - accuracy: 0.8274
Epoch 17/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.408
2 - accuracy: 0.8275
Epoch 18/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.407
4 - accuracy: 0.8299
Epoch 19/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.406
9 - accuracy: 0.8270
Epoch 20/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.406
1 - accuracy: 0.8285
Epoch 21/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.405
8 - accuracy: 0.8292
Epoch 22/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.405
5 - accuracy: 0.8292
Epoch 23/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.405
3 - accuracy: 0.8300
Epoch 24/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.405
0 - accuracy: 0.8300
Epoch 25/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.404
3 - accuracy: 0.8299
Epoch 26/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.404
1 - accuracy: 0.8287
Epoch 27/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.403
```

```
9 - accuracy: 0.8292
Epoch 28/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.404
0 - accuracy: 0.8289
Epoch 29/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.403
7 - accuracy: 0.8292
Epoch 30/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.403
3 - accuracy: 0.8307
Epoch 31/100
6030/6030 [=====] - 1s 167us/sample - loss: 0.403
2 - accuracy: 0.8305
Epoch 32/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.402
9 - accuracy: 0.8308
Epoch 33/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.402
6 - accuracy: 0.8312
Epoch 34/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.402
2 - accuracy: 0.8305
Epoch 35/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.402
2 - accuracy: 0.8307
Epoch 36/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.402
0 - accuracy: 0.8315
Epoch 37/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.402
2 - accuracy: 0.8299
Epoch 38/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.401
9 - accuracy: 0.8305
Epoch 39/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.401
3 - accuracy: 0.8313
Epoch 40/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.401
4 - accuracy: 0.8320
Epoch 41/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.401
2 - accuracy: 0.8317
Epoch 42/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.401
1 - accuracy: 0.8317
Epoch 43/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.400
6 - accuracy: 0.8322
Epoch 44/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.400
7 - accuracy: 0.8312
Epoch 45/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.400
8 - accuracy: 0.8317
Epoch 46/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.400
2 - accuracy: 0.8328
Epoch 47/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.399
8 - accuracy: 0.8315
```

Epoch 48/100  
6030/6030 [=====] - 1s 176us/sample - loss: 0.399  
6 - accuracy: 0.8317  
Epoch 49/100  
6030/6030 [=====] - 1s 176us/sample - loss: 0.399  
4 - accuracy: 0.8317  
Epoch 50/100  
6030/6030 [=====] - 1s 168us/sample - loss: 0.399  
5 - accuracy: 0.8308  
Epoch 51/100  
6030/6030 [=====] - 1s 175us/sample - loss: 0.399  
2 - accuracy: 0.8317  
Epoch 52/100  
6030/6030 [=====] - 1s 168us/sample - loss: 0.398  
6 - accuracy: 0.8318  
Epoch 53/100  
6030/6030 [=====] - 1s 175us/sample - loss: 0.398  
6 - accuracy: 0.8332  
Epoch 54/100  
6030/6030 [=====] - 1s 178us/sample - loss: 0.398  
7 - accuracy: 0.8340  
Epoch 55/100  
6030/6030 [=====] - 1s 180us/sample - loss: 0.397  
8 - accuracy: 0.8327  
Epoch 56/100  
6030/6030 [=====] - 1s 177us/sample - loss: 0.397  
8 - accuracy: 0.8335  
Epoch 57/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.397  
5 - accuracy: 0.8332  
Epoch 58/100  
6030/6030 [=====] - 1s 174us/sample - loss: 0.397  
9 - accuracy: 0.8333  
Epoch 59/100  
6030/6030 [=====] - 1s 175us/sample - loss: 0.397  
1 - accuracy: 0.8338  
Epoch 60/100  
6030/6030 [=====] - 1s 190us/sample - loss: 0.397  
3 - accuracy: 0.8360  
Epoch 61/100  
6030/6030 [=====] - 1s 178us/sample - loss: 0.396  
7 - accuracy: 0.8352  
Epoch 62/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.396  
2 - accuracy: 0.8352  
Epoch 63/100  
6030/6030 [=====] - 1s 178us/sample - loss: 0.395  
7 - accuracy: 0.8348  
Epoch 64/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.395  
4 - accuracy: 0.8358  
Epoch 65/100  
6030/6030 [=====] - 1s 202us/sample - loss: 0.395  
6 - accuracy: 0.8367  
Epoch 66/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.395  
1 - accuracy: 0.8355  
Epoch 67/100  
6030/6030 [=====] - 1s 168us/sample - loss: 0.394  
7 - accuracy: 0.8381  
Epoch 68/100

```
6030/6030 [=====] - 1s 204us/sample - loss: 0.394
0 - accuracy: 0.8362
Epoch 69/100
6030/6030 [=====] - 1s 234us/sample - loss: 0.394
2 - accuracy: 0.8385
Epoch 70/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.393
6 - accuracy: 0.8381
Epoch 71/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.393
5 - accuracy: 0.8391
Epoch 72/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.393
4 - accuracy: 0.8375
Epoch 73/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.392
6 - accuracy: 0.8380
Epoch 74/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.392
8 - accuracy: 0.8410
Epoch 75/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.392
4 - accuracy: 0.8401
Epoch 76/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.392
2 - accuracy: 0.8388
Epoch 77/100
6030/6030 [=====] - ETA: 0s - loss: 0.3901 - accu
racy: 0.84 - 1s 176us/sample - loss: 0.3912 - accuracy: 0.8393
Epoch 78/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.391
0 - accuracy: 0.8395
Epoch 79/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.390
9 - accuracy: 0.8420
Epoch 80/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.389
8 - accuracy: 0.8415
Epoch 81/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.388
9 - accuracy: 0.8395
Epoch 82/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.388
0 - accuracy: 0.8403
Epoch 83/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.387
0 - accuracy: 0.8425
Epoch 84/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.384
7 - accuracy: 0.8420
Epoch 85/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.383
3 - accuracy: 0.8411
Epoch 86/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.381
4 - accuracy: 0.8396
Epoch 87/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.379
4 - accuracy: 0.8380
Epoch 88/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.377
```

```
9 - accuracy: 0.8367
Epoch 89/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.375
8 - accuracy: 0.8391
Epoch 90/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.374
2 - accuracy: 0.8421
Epoch 91/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.371
9 - accuracy: 0.8433
Epoch 92/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.368
8 - accuracy: 0.8438
Epoch 93/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.366
9 - accuracy: 0.8421
Epoch 94/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.362
7 - accuracy: 0.8458
Epoch 95/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.359
1 - accuracy: 0.8489
Epoch 96/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.354
7 - accuracy: 0.8509
Epoch 97/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.351
7 - accuracy: 0.8524
Epoch 98/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.348
6 - accuracy: 0.8547
Epoch 99/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.346
6 - accuracy: 0.8570
Epoch 100/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.344
9 - accuracy: 0.8590
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 316us/sample - loss: 0.571
7 - accuracy: 0.7915
Epoch 2/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.441
4 - accuracy: 0.7934
Epoch 3/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.435
3 - accuracy: 0.7934
Epoch 4/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.432
6 - accuracy: 0.7934
Epoch 5/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.431
4 - accuracy: 0.7934
Epoch 6/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.429
5 - accuracy: 0.7934
Epoch 7/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.427
4 - accuracy: 0.7934
Epoch 8/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.425
```

```
4 - accuracy: 0.8023
Epoch 9/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.423
3 - accuracy: 0.8176
Epoch 10/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.421
8 - accuracy: 0.8199
Epoch 11/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.420
4 - accuracy: 0.8224
Epoch 12/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.419
3 - accuracy: 0.8232
Epoch 13/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.418
4 - accuracy: 0.8259
Epoch 14/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.417
4 - accuracy: 0.8259 - loss: 0.4127 - accuracy:
Epoch 15/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.416
5 - accuracy: 0.8277
Epoch 16/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.415
7 - accuracy: 0.8274
Epoch 17/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.415
2 - accuracy: 0.8284
Epoch 18/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.414
5 - accuracy: 0.8295
Epoch 19/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.413
8 - accuracy: 0.8300
Epoch 20/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.413
4 - accuracy: 0.8310
Epoch 21/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.412
8 - accuracy: 0.8307
Epoch 22/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.412
2 - accuracy: 0.8330
Epoch 23/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.411
6 - accuracy: 0.8310
Epoch 24/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.411
6 - accuracy: 0.8312
Epoch 25/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.410
8 - accuracy: 0.8328
Epoch 26/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.410
5 - accuracy: 0.8315
Epoch 27/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.409
9 - accuracy: 0.8337
Epoch 28/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.409
4 - accuracy: 0.8327
```

Epoch 29/100  
6030/6030 [=====] - 1s 222us/sample - loss: 0.409  
3 - accuracy: 0.8335  
Epoch 30/100  
6030/6030 [=====] - 1s 213us/sample - loss: 0.409  
0 - accuracy: 0.8335  
Epoch 31/100  
6030/6030 [=====] - 1s 214us/sample - loss: 0.408  
8 - accuracy: 0.8325  
Epoch 32/100  
6030/6030 [=====] - 1s 201us/sample - loss: 0.408  
3 - accuracy: 0.8338  
Epoch 33/100  
6030/6030 [=====] - 1s 212us/sample - loss: 0.408  
2 - accuracy: 0.8337  
Epoch 34/100  
6030/6030 [=====] - 1s 209us/sample - loss: 0.407  
8 - accuracy: 0.8348  
Epoch 35/100  
6030/6030 [=====] - 1s 239us/sample - loss: 0.407  
4 - accuracy: 0.8327  
Epoch 36/100  
6030/6030 [=====] - 1s 221us/sample - loss: 0.407  
1 - accuracy: 0.8342  
Epoch 37/100  
6030/6030 [=====] - 1s 227us/sample - loss: 0.407  
1 - accuracy: 0.8338  
Epoch 38/100  
6030/6030 [=====] - 1s 212us/sample - loss: 0.407  
0 - accuracy: 0.8317  
Epoch 39/100  
6030/6030 [=====] - 1s 230us/sample - loss: 0.406  
6 - accuracy: 0.8343  
Epoch 40/100  
6030/6030 [=====] - 1s 221us/sample - loss: 0.406  
5 - accuracy: 0.8332  
Epoch 41/100  
6030/6030 [=====] - 1s 213us/sample - loss: 0.406  
4 - accuracy: 0.8320  
Epoch 42/100  
6030/6030 [=====] - 1s 209us/sample - loss: 0.406  
0 - accuracy: 0.8325  
Epoch 43/100  
6030/6030 [=====] - 1s 205us/sample - loss: 0.406  
1 - accuracy: 0.8328  
Epoch 44/100  
6030/6030 [=====] - 1s 206us/sample - loss: 0.406  
0 - accuracy: 0.8330  
Epoch 45/100  
6030/6030 [=====] - 1s 201us/sample - loss: 0.405  
4 - accuracy: 0.8327  
Epoch 46/100  
6030/6030 [=====] - 1s 235us/sample - loss: 0.405  
6 - accuracy: 0.8325  
Epoch 47/100  
6030/6030 [=====] - 2s 349us/sample - loss: 0.405  
1 - accuracy: 0.8342  
Epoch 48/100  
6030/6030 [=====] - 2s 355us/sample - loss: 0.405  
2 - accuracy: 0.8343  
Epoch 49/100



```
6030/6030 [=====] - 2s 298us/sample - loss: 0.405
3 - accuracy: 0.8338
Epoch 50/100
6030/6030 [=====] - 2s 288us/sample - loss: 0.405
1 - accuracy: 0.8333
Epoch 51/100
6030/6030 [=====] - 2s 281us/sample - loss: 0.404
4 - accuracy: 0.8332
Epoch 52/100
6030/6030 [=====] - 2s 311us/sample - loss: 0.404
3 - accuracy: 0.8343
Epoch 53/100
6030/6030 [=====] - 2s 287us/sample - loss: 0.404
1 - accuracy: 0.8353
Epoch 54/100
6030/6030 [=====] - 2s 365us/sample - loss: 0.404
6 - accuracy: 0.8342
Epoch 55/100
6030/6030 [=====] - 2s 280us/sample - loss: 0.403
8 - accuracy: 0.8330
Epoch 56/100
6030/6030 [=====] - 1s 238us/sample - loss: 0.403
8 - accuracy: 0.8317
Epoch 57/100
6030/6030 [=====] - 1s 236us/sample - loss: 0.403
2 - accuracy: 0.8333
Epoch 58/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.403
5 - accuracy: 0.8352
Epoch 59/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.403
6 - accuracy: 0.8320
Epoch 60/100
6030/6030 [=====] - 1s 218us/sample - loss: 0.403
0 - accuracy: 0.8327
Epoch 61/100
6030/6030 [=====] - 1s 227us/sample - loss: 0.403
1 - accuracy: 0.8337
Epoch 62/100
6030/6030 [=====] - 1s 226us/sample - loss: 0.403
0 - accuracy: 0.8327
Epoch 63/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.402
6 - accuracy: 0.8333
Epoch 64/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.402
7 - accuracy: 0.8353
Epoch 65/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.402
4 - accuracy: 0.8330
Epoch 66/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.402
2 - accuracy: 0.8338
Epoch 67/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.402
4 - accuracy: 0.8333
Epoch 68/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.402
6 - accuracy: 0.8333
Epoch 69/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.402
```

```
3 - accuracy: 0.8332
Epoch 70/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.402
8 - accuracy: 0.8337
Epoch 71/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.402
3 - accuracy: 0.8325
Epoch 72/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.402
6 - accuracy: 0.8340
Epoch 73/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.402
1 - accuracy: 0.8332
Epoch 74/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.402
2 - accuracy: 0.8337
Epoch 75/100
6030/6030 [=====] - ETA: 0s - loss: 0.4046 - accuracy: 0.83 - 1s 213us/sample - loss: 0.4025 - accuracy: 0.8330
Epoch 76/100
6030/6030 [=====] - 1s 216us/sample - loss: 0.402
3 - accuracy: 0.8328
Epoch 77/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.402
2 - accuracy: 0.8338
Epoch 78/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.401
7 - accuracy: 0.8327
Epoch 79/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.401
7 - accuracy: 0.8343
Epoch 80/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.402
0 - accuracy: 0.8342
Epoch 81/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.401
9 - accuracy: 0.8350
Epoch 82/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.401
6 - accuracy: 0.8347
Epoch 83/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.402
1 - accuracy: 0.8343
Epoch 84/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.401
7 - accuracy: 0.8333
Epoch 85/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.401
9 - accuracy: 0.8332
Epoch 86/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.401
7 - accuracy: 0.8340
Epoch 87/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.401
8 - accuracy: 0.8353
Epoch 88/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.402
2 - accuracy: 0.8348
Epoch 89/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.401
3 - accuracy: 0.8340
```

Epoch 90/100  
6030/6030 [=====] - 1s 194us/sample - loss: 0.401  
6 - accuracy: 0.8340

Epoch 91/100  
6030/6030 [=====] - 1s 190us/sample - loss: 0.401  
4 - accuracy: 0.8335

Epoch 92/100  
6030/6030 [=====] - 1s 185us/sample - loss: 0.401  
8 - accuracy: 0.8342

Epoch 93/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.401  
8 - accuracy: 0.8343

Epoch 94/100  
6030/6030 [=====] - 1s 187us/sample - loss: 0.401  
0 - accuracy: 0.8332

Epoch 95/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.401  
5 - accuracy: 0.8340

Epoch 96/100  
6030/6030 [=====] - 1s 202us/sample - loss: 0.401  
7 - accuracy: 0.8347

Epoch 97/100  
6030/6030 [=====] - 1s 185us/sample - loss: 0.401  
4 - accuracy: 0.8322

Epoch 98/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.401  
4 - accuracy: 0.8330

Epoch 99/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.401  
3 - accuracy: 0.8335

Epoch 100/100  
6030/6030 [=====] - 1s 212us/sample - loss: 0.401  
2 - accuracy: 0.8343

Train on 6030 samples

Epoch 1/100  
6030/6030 [=====] - 3s 491us/sample - loss: 0.582  
8 - accuracy: 0.7907

Epoch 2/100  
6030/6030 [=====] - 1s 205us/sample - loss: 0.439  
5 - accuracy: 0.7920

Epoch 3/100  
6030/6030 [=====] - 1s 198us/sample - loss: 0.423  
8 - accuracy: 0.8148

Epoch 4/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.414  
6 - accuracy: 0.8206

Epoch 5/100  
6030/6030 [=====] - 1s 189us/sample - loss: 0.406  
8 - accuracy: 0.8234

Epoch 6/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.399  
8 - accuracy: 0.8240

Epoch 7/100  
6030/6030 [=====] - 1s 192us/sample - loss: 0.394  
8 - accuracy: 0.8262

Epoch 8/100  
6030/6030 [=====] - 1s 207us/sample - loss: 0.390  
0 - accuracy: 0.8269

Epoch 9/100  
6030/6030 [=====] - 1s 192us/sample - loss: 0.386  
3 - accuracy: 0.8264

```
Epoch 10/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.382
3 - accuracy: 0.8300
Epoch 11/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.379
7 - accuracy: 0.8280
Epoch 12/100
6030/6030 [=====] - 1s 234us/sample - loss: 0.376
7 - accuracy: 0.8408
Epoch 13/100
6030/6030 [=====] - 1s 221us/sample - loss: 0.374
6 - accuracy: 0.8420
Epoch 14/100
6030/6030 [=====] - 1s 221us/sample - loss: 0.372
6 - accuracy: 0.8466
Epoch 15/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.370
5 - accuracy: 0.8484
Epoch 16/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.368
6 - accuracy: 0.8464
Epoch 17/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.367
6 - accuracy: 0.8479
Epoch 18/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.365
6 - accuracy: 0.8498
Epoch 19/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.364
3 - accuracy: 0.8488
Epoch 20/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.363
1 - accuracy: 0.8478
Epoch 21/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.361
7 - accuracy: 0.8493
Epoch 22/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.361
1 - accuracy: 0.8488
Epoch 23/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.360
3 - accuracy: 0.8499
Epoch 24/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.359
5 - accuracy: 0.8516
Epoch 25/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.358
5 - accuracy: 0.8524
Epoch 26/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.357
5 - accuracy: 0.8526
Epoch 27/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.357
3 - accuracy: 0.8502
Epoch 28/100
6030/6030 [=====] - 1s 167us/sample - loss: 0.357
1 - accuracy: 0.8512
Epoch 29/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.356
4 - accuracy: 0.8516
Epoch 30/100
```

```
6030/6030 [=====] - 1s 169us/sample - loss: 0.355
0 - accuracy: 0.8519
Epoch 31/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.355
9 - accuracy: 0.8536
Epoch 32/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.355
5 - accuracy: 0.8526
Epoch 33/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.354
3 - accuracy: 0.8557
Epoch 34/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.355
0 - accuracy: 0.8554
Epoch 35/100
6030/6030 [=====] - 1s 220us/sample - loss: 0.353
0 - accuracy: 0.8561
Epoch 36/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.352
3 - accuracy: 0.8556
Epoch 37/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.353
4 - accuracy: 0.8549
Epoch 38/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.352
2 - accuracy: 0.8531
Epoch 39/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.352
0 - accuracy: 0.8556
Epoch 40/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.351
9 - accuracy: 0.8539
Epoch 41/100
6030/6030 [=====] - 1s 234us/sample - loss: 0.352
1 - accuracy: 0.8549
Epoch 42/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.351
7 - accuracy: 0.8566
Epoch 43/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.352
0 - accuracy: 0.8546
Epoch 44/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.351
3 - accuracy: 0.8552
Epoch 45/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.350
5 - accuracy: 0.8569
Epoch 46/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.349
8 - accuracy: 0.8527 - loss: 0.3482 - accuracy: 0.85
Epoch 47/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.351
4 - accuracy: 0.8554
Epoch 48/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.349
7 - accuracy: 0.8527
Epoch 49/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.349
2 - accuracy: 0.8572
Epoch 50/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.350
```

```
6 - accuracy: 0.8547
Epoch 51/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.349
3 - accuracy: 0.8566
Epoch 52/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.349
3 - accuracy: 0.8570
Epoch 53/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.348
9 - accuracy: 0.8554
Epoch 54/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.349
0 - accuracy: 0.8575
Epoch 55/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.349
2 - accuracy: 0.8552
Epoch 56/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.348
2 - accuracy: 0.8552
Epoch 57/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.348
6 - accuracy: 0.8584
Epoch 58/100
6030/6030 [=====] - 1s 216us/sample - loss: 0.348
4 - accuracy: 0.8559
Epoch 59/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.348
3 - accuracy: 0.8557
Epoch 60/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.347
9 - accuracy: 0.8582
Epoch 61/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.348
3 - accuracy: 0.8549
Epoch 62/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.348
1 - accuracy: 0.8569
Epoch 63/100
6030/6030 [=====] - 1s 225us/sample - loss: 0.347
5 - accuracy: 0.8577
Epoch 64/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.346
4 - accuracy: 0.8564
Epoch 65/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.346
4 - accuracy: 0.8579
Epoch 66/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.346
2 - accuracy: 0.8610
Epoch 67/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.347
0 - accuracy: 0.8585
Epoch 68/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.346
7 - accuracy: 0.8569
Epoch 69/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.345
7 - accuracy: 0.8575
Epoch 70/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.347
0 - accuracy: 0.8584
```

Epoch 71/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.346  
1 - accuracy: 0.8561

Epoch 72/100  
6030/6030 [=====] - 1s 171us/sample - loss: 0.345  
6 - accuracy: 0.8577

Epoch 73/100  
6030/6030 [=====] - 1s 179us/sample - loss: 0.345  
2 - accuracy: 0.8579

Epoch 74/100  
6030/6030 [=====] - 1s 206us/sample - loss: 0.346  
2 - accuracy: 0.8585

Epoch 75/100  
6030/6030 [=====] - 1s 189us/sample - loss: 0.345  
6 - accuracy: 0.8582

Epoch 76/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.345  
4 - accuracy: 0.8572

Epoch 77/100  
6030/6030 [=====] - 1s 193us/sample - loss: 0.345  
4 - accuracy: 0.8577

Epoch 78/100  
6030/6030 [=====] - 1s 178us/sample - loss: 0.345  
1 - accuracy: 0.8575

Epoch 79/100  
6030/6030 [=====] - 1s 184us/sample - loss: 0.345  
2 - accuracy: 0.8610

Epoch 80/100  
6030/6030 [=====] - 1s 169us/sample - loss: 0.344  
3 - accuracy: 0.8582

Epoch 81/100  
6030/6030 [=====] - 1s 174us/sample - loss: 0.343  
7 - accuracy: 0.8561

Epoch 82/100  
6030/6030 [=====] - 1s 190us/sample - loss: 0.343  
6 - accuracy: 0.8585

Epoch 83/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.344  
5 - accuracy: 0.8594

Epoch 84/100  
6030/6030 [=====] - 1s 171us/sample - loss: 0.343  
7 - accuracy: 0.8582

Epoch 85/100  
6030/6030 [=====] - 1s 192us/sample - loss: 0.342  
8 - accuracy: 0.8579

Epoch 86/100  
6030/6030 [=====] - 1s 180us/sample - loss: 0.343  
4 - accuracy: 0.8570

Epoch 87/100  
6030/6030 [=====] - 1s 182us/sample - loss: 0.342  
8 - accuracy: 0.8597

Epoch 88/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.343  
4 - accuracy: 0.8584

Epoch 89/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.343  
1 - accuracy: 0.8582

Epoch 90/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.342  
7 - accuracy: 0.8579

Epoch 91/100

```
6030/6030 [=====] - 1s 195us/sample - loss: 0.342
9 - accuracy: 0.8584
Epoch 92/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.343
3 - accuracy: 0.8567
Epoch 93/100
6030/6030 [=====] - 1s 246us/sample - loss: 0.341
8 - accuracy: 0.8567
Epoch 94/100
6030/6030 [=====] - 1s 220us/sample - loss: 0.341
9 - accuracy: 0.8575
Epoch 95/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.342
4 - accuracy: 0.8592
Epoch 96/100
6030/6030 [=====] - 1s 239us/sample - loss: 0.341
7 - accuracy: 0.8567
Epoch 97/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.340
9 - accuracy: 0.8564
Epoch 98/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.343
2 - accuracy: 0.8582
Epoch 99/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.341
7 - accuracy: 0.8557
Epoch 100/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.341
6 - accuracy: 0.8577
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 306us/sample - loss: 0.599
9 - accuracy: 0.7876
Epoch 2/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.449
3 - accuracy: 0.7907
Epoch 3/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.439
4 - accuracy: 0.7907
Epoch 4/100
6030/6030 [=====] - 1s 243us/sample - loss: 0.436
4 - accuracy: 0.7907
Epoch 5/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.434
4 - accuracy: 0.7907
Epoch 6/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.432
2 - accuracy: 0.7907
Epoch 7/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.429
6 - accuracy: 0.7907
Epoch 8/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.427
2 - accuracy: 0.7910
Epoch 9/100
6030/6030 [=====] - 1s 220us/sample - loss: 0.425
6 - accuracy: 0.8144
Epoch 10/100
6030/6030 [=====] - 1s 230us/sample - loss: 0.423
9 - accuracy: 0.8189
Epoch 11/100
```



```
6030/6030 [=====] - 1s 196us/sample - loss: 0.422
7 - accuracy: 0.8207
Epoch 12/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.421
7 - accuracy: 0.8242
Epoch 13/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.420
8 - accuracy: 0.8250
Epoch 14/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.420
0 - accuracy: 0.8265
Epoch 15/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.419
2 - accuracy: 0.8300
Epoch 16/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.418
2 - accuracy: 0.8295
Epoch 17/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.418
0 - accuracy: 0.8285
Epoch 18/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.417
1 - accuracy: 0.8302
Epoch 19/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.416
7 - accuracy: 0.8289
Epoch 20/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.416
0 - accuracy: 0.8315
Epoch 21/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.415
3 - accuracy: 0.8300
Epoch 22/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.414
8 - accuracy: 0.8297
Epoch 23/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.414
1 - accuracy: 0.8312
Epoch 24/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.413
9 - accuracy: 0.8310
Epoch 25/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.413
3 - accuracy: 0.8323
Epoch 26/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.412
7 - accuracy: 0.8312
Epoch 27/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.412
7 - accuracy: 0.8317
Epoch 28/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.412
1 - accuracy: 0.8308
Epoch 29/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.411
9 - accuracy: 0.8305
Epoch 30/100
6030/6030 [=====] - 1s 221us/sample - loss: 0.411
5 - accuracy: 0.8310
Epoch 31/100
6030/6030 [=====] - 1s 216us/sample - loss: 0.411
```

```
5 - accuracy: 0.8310
Epoch 32/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.411
0 - accuracy: 0.8310
Epoch 33/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.410
9 - accuracy: 0.8313
Epoch 34/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.410
4 - accuracy: 0.8310
Epoch 35/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.410
2 - accuracy: 0.8310
Epoch 36/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.410
2 - accuracy: 0.8315
Epoch 37/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.409
8 - accuracy: 0.8318
Epoch 38/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.409
9 - accuracy: 0.8318
Epoch 39/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.409
5 - accuracy: 0.8320
Epoch 40/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.409
4 - accuracy: 0.8313
Epoch 41/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.409
3 - accuracy: 0.8325
Epoch 42/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.409
2 - accuracy: 0.8307
Epoch 43/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.408
8 - accuracy: 0.8318
Epoch 44/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.407
8 - accuracy: 0.8313
Epoch 45/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.407
0 - accuracy: 0.8315
Epoch 46/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.406
6 - accuracy: 0.8310
Epoch 47/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.406
1 - accuracy: 0.8317
Epoch 48/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.405
7 - accuracy: 0.8320
Epoch 49/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.405
2 - accuracy: 0.8310
Epoch 50/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.404
9 - accuracy: 0.8327
Epoch 51/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.404
5 - accuracy: 0.8327
```

Epoch 52/100  
6030/6030 [=====] - 1s 184us/sample - loss: 0.404  
1 - accuracy: 0.8320

Epoch 53/100  
6030/6030 [=====] - 1s 182us/sample - loss: 0.403  
8 - accuracy: 0.8318

Epoch 54/100  
6030/6030 [=====] - 1s 190us/sample - loss: 0.403  
5 - accuracy: 0.8317

Epoch 55/100  
6030/6030 [=====] - 1s 206us/sample - loss: 0.403  
2 - accuracy: 0.8322

Epoch 56/100  
6030/6030 [=====] - 1s 204us/sample - loss: 0.402  
7 - accuracy: 0.8328

Epoch 57/100  
6030/6030 [=====] - 1s 189us/sample - loss: 0.402  
5 - accuracy: 0.8322

Epoch 58/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.402  
5 - accuracy: 0.8332

Epoch 59/100  
6030/6030 [=====] - 1s 174us/sample - loss: 0.402  
2 - accuracy: 0.8325

Epoch 60/100  
6030/6030 [=====] - 1s 179us/sample - loss: 0.401  
3 - accuracy: 0.8335

Epoch 61/100  
6030/6030 [=====] - 1s 179us/sample - loss: 0.401  
7 - accuracy: 0.8303

Epoch 62/100  
6030/6030 [=====] - 1s 174us/sample - loss: 0.401  
3 - accuracy: 0.8320

Epoch 63/100  
6030/6030 [=====] - 1s 168us/sample - loss: 0.401  
3 - accuracy: 0.8325

Epoch 64/100  
6030/6030 [=====] - 1s 170us/sample - loss: 0.401  
0 - accuracy: 0.8320

Epoch 65/100  
6030/6030 [=====] - 1s 185us/sample - loss: 0.401  
0 - accuracy: 0.8322

Epoch 66/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.400  
5 - accuracy: 0.8327

Epoch 67/100  
6030/6030 [=====] - 1s 211us/sample - loss: 0.400  
2 - accuracy: 0.8325

Epoch 68/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.400  
3 - accuracy: 0.8333

Epoch 69/100  
6030/6030 [=====] - 1s 208us/sample - loss: 0.399  
6 - accuracy: 0.8323

Epoch 70/100  
6030/6030 [=====] - 1s 213us/sample - loss: 0.400  
0 - accuracy: 0.8340

Epoch 71/100  
6030/6030 [=====] - 1s 197us/sample - loss: 0.399  
4 - accuracy: 0.8330

Epoch 72/100

```
6030/6030 [=====] - 1s 213us/sample - loss: 0.399
6 - accuracy: 0.8347
Epoch 73/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.398
8 - accuracy: 0.8332
Epoch 74/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.398
8 - accuracy: 0.8345
Epoch 75/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.398
7 - accuracy: 0.8328
Epoch 76/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.398
4 - accuracy: 0.8340
Epoch 77/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.398
3 - accuracy: 0.8315
Epoch 78/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.397
7 - accuracy: 0.8342
Epoch 79/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.397
6 - accuracy: 0.8333
Epoch 80/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.397
7 - accuracy: 0.8333
Epoch 81/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.397
0 - accuracy: 0.8343
Epoch 82/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.396
8 - accuracy: 0.8340
Epoch 83/100
6030/6030 [=====] - 2s 276us/sample - loss: 0.396
0 - accuracy: 0.8337
Epoch 84/100
6030/6030 [=====] - 2s 276us/sample - loss: 0.395
4 - accuracy: 0.8340
Epoch 85/100
6030/6030 [=====] - 1s 237us/sample - loss: 0.393
8 - accuracy: 0.8343
Epoch 86/100
6030/6030 [=====] - 1s 226us/sample - loss: 0.394
1 - accuracy: 0.8357
Epoch 87/100
6030/6030 [=====] - 1s 227us/sample - loss: 0.392
3 - accuracy: 0.8371
Epoch 88/100
6030/6030 [=====] - 1s 224us/sample - loss: 0.391
4 - accuracy: 0.8376
Epoch 89/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.389
8 - accuracy: 0.8375
Epoch 90/100
6030/6030 [=====] - 1s 225us/sample - loss: 0.388
2 - accuracy: 0.8378
Epoch 91/100
6030/6030 [=====] - 2s 338us/sample - loss: 0.386
8 - accuracy: 0.8378
Epoch 92/100
6030/6030 [=====] - 1s 218us/sample - loss: 0.384
```

```
3 - accuracy: 0.8403
Epoch 93/100
6030/6030 [=====] - 1s 225us/sample - loss: 0.382
5 - accuracy: 0.8411
Epoch 94/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.379
2 - accuracy: 0.8425
Epoch 95/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.377
5 - accuracy: 0.8433
Epoch 96/100
6030/6030 [=====] - 1s 218us/sample - loss: 0.374
6 - accuracy: 0.8438
Epoch 97/100
6030/6030 [=====] - 1s 221us/sample - loss: 0.371
8 - accuracy: 0.8454
Epoch 98/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.369
5 - accuracy: 0.8456
Epoch 99/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.367
7 - accuracy: 0.8444
Epoch 100/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.365
3 - accuracy: 0.8454
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 4s 687us/sample - loss: 0.597
8 - accuracy: 0.7907
Epoch 2/100
6030/6030 [=====] - 2s 264us/sample - loss: 0.447
4 - accuracy: 0.7919
Epoch 3/100
6030/6030 [=====] - 2s 267us/sample - loss: 0.439
5 - accuracy: 0.7919
Epoch 4/100
6030/6030 [=====] - 2s 273us/sample - loss: 0.435
6 - accuracy: 0.7919
Epoch 5/100
6030/6030 [=====] - 2s 264us/sample - loss: 0.431
9 - accuracy: 0.7919
Epoch 6/100
6030/6030 [=====] - 2s 262us/sample - loss: 0.427
8 - accuracy: 0.8088
Epoch 7/100
6030/6030 [=====] - 2s 265us/sample - loss: 0.423
2 - accuracy: 0.8214
Epoch 8/100
6030/6030 [=====] - 2s 270us/sample - loss: 0.419
4 - accuracy: 0.8299
Epoch 9/100
6030/6030 [=====] - 2s 270us/sample - loss: 0.415
9 - accuracy: 0.8290
Epoch 10/100
6030/6030 [=====] - 1s 246us/sample - loss: 0.413
5 - accuracy: 0.8292
Epoch 11/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.412
0 - accuracy: 0.8318
Epoch 12/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.410
```

```
0 - accuracy: 0.8315
Epoch 13/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.409
0 - accuracy: 0.8302
Epoch 14/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.407
8 - accuracy: 0.8337
Epoch 15/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.406
7 - accuracy: 0.8313
Epoch 16/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.406
0 - accuracy: 0.8310
Epoch 17/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.405
1 - accuracy: 0.8328
Epoch 18/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.404
4 - accuracy: 0.8320
Epoch 19/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.403
3 - accuracy: 0.8333
Epoch 20/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.403
2 - accuracy: 0.8318
Epoch 21/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.402
5 - accuracy: 0.8325
Epoch 22/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.402
1 - accuracy: 0.8328
Epoch 23/100
6030/6030 [=====] - 2s 263us/sample - loss: 0.401
6 - accuracy: 0.8333
Epoch 24/100
6030/6030 [=====] - 1s 237us/sample - loss: 0.401
3 - accuracy: 0.8342
Epoch 25/100
6030/6030 [=====] - 1s 234us/sample - loss: 0.401
0 - accuracy: 0.8325
Epoch 26/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.400
7 - accuracy: 0.8340
Epoch 27/100
6030/6030 [=====] - 1s 226us/sample - loss: 0.401
0 - accuracy: 0.8342
Epoch 28/100
6030/6030 [=====] - 1s 224us/sample - loss: 0.400
5 - accuracy: 0.8343
Epoch 29/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.400
1 - accuracy: 0.8340
Epoch 30/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.399
7 - accuracy: 0.8343
Epoch 31/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.399
5 - accuracy: 0.8352
Epoch 32/100
6030/6030 [=====] - 1s 224us/sample - loss: 0.399
3 - accuracy: 0.8333
```

Epoch 33/100  
6030/6030 [=====] - 1s 217us/sample - loss: 0.399  
1 - accuracy: 0.8318

Epoch 34/100  
6030/6030 [=====] - 1s 177us/sample - loss: 0.398  
8 - accuracy: 0.8342

Epoch 35/100  
6030/6030 [=====] - 1s 175us/sample - loss: 0.398  
9 - accuracy: 0.8350

Epoch 36/100  
6030/6030 [=====] - 1s 169us/sample - loss: 0.398  
7 - accuracy: 0.8337

Epoch 37/100  
6030/6030 [=====] - 1s 190us/sample - loss: 0.398  
8 - accuracy: 0.8350

Epoch 38/100  
6030/6030 [=====] - 1s 191us/sample - loss: 0.398  
3 - accuracy: 0.8338

Epoch 39/100  
6030/6030 [=====] - 1s 201us/sample - loss: 0.398  
2 - accuracy: 0.8340

Epoch 40/100  
6030/6030 [=====] - 1s 198us/sample - loss: 0.398  
1 - accuracy: 0.8338

Epoch 41/100  
6030/6030 [=====] - 1s 197us/sample - loss: 0.398  
4 - accuracy: 0.8348

Epoch 42/100  
6030/6030 [=====] - 1s 197us/sample - loss: 0.397  
7 - accuracy: 0.8338

Epoch 43/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.398  
0 - accuracy: 0.8337

Epoch 44/100  
6030/6030 [=====] - 1s 197us/sample - loss: 0.397  
6 - accuracy: 0.8350

Epoch 45/100  
6030/6030 [=====] - 1s 197us/sample - loss: 0.397  
5 - accuracy: 0.8342

Epoch 46/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.397  
3 - accuracy: 0.8342

Epoch 47/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.397  
0 - accuracy: 0.8370

Epoch 48/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.397  
2 - accuracy: 0.8347

Epoch 49/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.397  
2 - accuracy: 0.8343

Epoch 50/100  
6030/6030 [=====] - 1s 197us/sample - loss: 0.396  
6 - accuracy: 0.8347

Epoch 51/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.397  
0 - accuracy: 0.8340

Epoch 52/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.396  
7 - accuracy: 0.8335

Epoch 53/100

```
6030/6030 [=====] - 1s 196us/sample - loss: 0.396
8 - accuracy: 0.8325
Epoch 54/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.396
9 - accuracy: 0.8338
Epoch 55/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.396
4 - accuracy: 0.8342
Epoch 56/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.397
2 - accuracy: 0.8352
Epoch 57/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.396
6 - accuracy: 0.8338
Epoch 58/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.396
7 - accuracy: 0.8352
Epoch 59/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.396
4 - accuracy: 0.8345
Epoch 60/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.396
3 - accuracy: 0.8342
Epoch 61/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.396
3 - accuracy: 0.8347
Epoch 62/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.396
1 - accuracy: 0.8345
Epoch 63/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.396
2 - accuracy: 0.8355
Epoch 64/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.395
4 - accuracy: 0.8348
Epoch 65/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.396
0 - accuracy: 0.8368
Epoch 66/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.395
9 - accuracy: 0.8357
Epoch 67/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.395
2 - accuracy: 0.8362
Epoch 68/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.395
5 - accuracy: 0.8370
Epoch 69/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.394
8 - accuracy: 0.8357
Epoch 70/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.394
9 - accuracy: 0.8362
Epoch 71/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.394
5 - accuracy: 0.8380
Epoch 72/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.394
7 - accuracy: 0.8363
Epoch 73/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.394
```



```
7 - accuracy: 0.8360
Epoch 74/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.394
4 - accuracy: 0.8376
Epoch 75/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.394
3 - accuracy: 0.8352
Epoch 76/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.393
6 - accuracy: 0.8383
Epoch 77/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.394
2 - accuracy: 0.8381
Epoch 78/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.394
1 - accuracy: 0.8368
Epoch 79/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.393
4 - accuracy: 0.8371
Epoch 80/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.393
3 - accuracy: 0.8370
Epoch 81/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.393
5 - accuracy: 0.8390
Epoch 82/100
6030/6030 [=====] - 2s 258us/sample - loss: 0.393
6 - accuracy: 0.8371
Epoch 83/100
6030/6030 [=====] - 2s 289us/sample - loss: 0.392
8 - accuracy: 0.8398
Epoch 84/100
6030/6030 [=====] - 1s 233us/sample - loss: 0.393
3 - accuracy: 0.8385
Epoch 85/100
6030/6030 [=====] - 2s 252us/sample - loss: 0.392
7 - accuracy: 0.8381
Epoch 86/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.392
9 - accuracy: 0.8388
Epoch 87/100
6030/6030 [=====] - 2s 278us/sample - loss: 0.392
4 - accuracy: 0.8403
Epoch 88/100
6030/6030 [=====] - 1s 230us/sample - loss: 0.392
9 - accuracy: 0.8390
Epoch 89/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.392
4 - accuracy: 0.8395
Epoch 90/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.391
7 - accuracy: 0.8403
Epoch 91/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.391
6 - accuracy: 0.8408
Epoch 92/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.391
0 - accuracy: 0.8381
Epoch 93/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.390
7 - accuracy: 0.8396
```

Epoch 94/100  
6030/6030 [=====] - 1s 200us/sample - loss: 0.390  
6 - accuracy: 0.8386

Epoch 95/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.390  
0 - accuracy: 0.8393

Epoch 96/100  
6030/6030 [=====] - 1s 197us/sample - loss: 0.389  
2 - accuracy: 0.8401

Epoch 97/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.388  
3 - accuracy: 0.8396

Epoch 98/100  
6030/6030 [=====] - 1s 169us/sample - loss: 0.388  
0 - accuracy: 0.8403

Epoch 99/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.387  
3 - accuracy: 0.8406

Epoch 100/100  
6030/6030 [=====] - 1s 169us/sample - loss: 0.386  
9 - accuracy: 0.8403

Train on 6030 samples

Epoch 1/100  
6030/6030 [=====] - 5s 777us/sample - loss: 0.585  
0 - accuracy: 0.7954

Epoch 2/100  
6030/6030 [=====] - 1s 187us/sample - loss: 0.446  
8 - accuracy: 0.7954

Epoch 3/100  
6030/6030 [=====] - 1s 184us/sample - loss: 0.435  
3 - accuracy: 0.7954

Epoch 4/100  
6030/6030 [=====] - 1s 184us/sample - loss: 0.430  
9 - accuracy: 0.7954

Epoch 5/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.428  
2 - accuracy: 0.7954

Epoch 6/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.425  
2 - accuracy: 0.7954

Epoch 7/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.422  
3 - accuracy: 0.7992

Epoch 8/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.419  
9 - accuracy: 0.8166

Epoch 9/100  
6030/6030 [=====] - 1s 184us/sample - loss: 0.417  
9 - accuracy: 0.8217

Epoch 10/100  
6030/6030 [=====] - 1s 197us/sample - loss: 0.416  
5 - accuracy: 0.8264

Epoch 11/100  
6030/6030 [=====] - 1s 209us/sample - loss: 0.415  
2 - accuracy: 0.8282

Epoch 12/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.413  
7 - accuracy: 0.8285

Epoch 13/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.413  
0 - accuracy: 0.8302

Epoch 14/100  
6030/6030 [=====] - 1s 192us/sample - loss: 0.411  
7 - accuracy: 0.8310

Epoch 15/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.410  
8 - accuracy: 0.8317

Epoch 16/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.410  
2 - accuracy: 0.8313

Epoch 17/100  
6030/6030 [=====] - 1s 198us/sample - loss: 0.409  
2 - accuracy: 0.8323

Epoch 18/100  
6030/6030 [=====] - 1s 198us/sample - loss: 0.408  
8 - accuracy: 0.8305

Epoch 19/100  
6030/6030 [=====] - 1s 206us/sample - loss: 0.408  
1 - accuracy: 0.8345

Epoch 20/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.407  
5 - accuracy: 0.8325

Epoch 21/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.407  
0 - accuracy: 0.8317

Epoch 22/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.406  
2 - accuracy: 0.8327

Epoch 23/100  
6030/6030 [=====] - 1s 204us/sample - loss: 0.406  
1 - accuracy: 0.8333

Epoch 24/100  
6030/6030 [=====] - 1s 189us/sample - loss: 0.405  
7 - accuracy: 0.8335

Epoch 25/100  
6030/6030 [=====] - 1s 193us/sample - loss: 0.405  
3 - accuracy: 0.8325

Epoch 26/100  
6030/6030 [=====] - 1s 189us/sample - loss: 0.404  
9 - accuracy: 0.8332

Epoch 27/100  
6030/6030 [=====] - 1s 182us/sample - loss: 0.404  
4 - accuracy: 0.8317

Epoch 28/100  
6030/6030 [=====] - 1s 182us/sample - loss: 0.404  
3 - accuracy: 0.8328

Epoch 29/100  
6030/6030 [=====] - 1s 182us/sample - loss: 0.403  
8 - accuracy: 0.8338

Epoch 30/100  
6030/6030 [=====] - 1s 182us/sample - loss: 0.403  
7 - accuracy: 0.8343

Epoch 31/100  
6030/6030 [=====] - 1s 182us/sample - loss: 0.403  
4 - accuracy: 0.8332

Epoch 32/100  
6030/6030 [=====] - 1s 192us/sample - loss: 0.403  
0 - accuracy: 0.8345

Epoch 33/100  
6030/6030 [=====] - 1s 189us/sample - loss: 0.403  
0 - accuracy: 0.8328

Epoch 34/100

```
6030/6030 [=====] - 1s 181us/sample - loss: 0.402
8 - accuracy: 0.8347
Epoch 35/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.402
5 - accuracy: 0.8345
Epoch 36/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.402
6 - accuracy: 0.8327
Epoch 37/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.402
5 - accuracy: 0.8333
Epoch 38/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.401
9 - accuracy: 0.8338
Epoch 39/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.402
1 - accuracy: 0.8337
Epoch 40/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.401
3 - accuracy: 0.8327
Epoch 41/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.401
0 - accuracy: 0.8337
Epoch 42/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.401
3 - accuracy: 0.8338
Epoch 43/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.401
8 - accuracy: 0.8352
Epoch 44/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.401
4 - accuracy: 0.8337
Epoch 45/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.400
9 - accuracy: 0.8342
Epoch 46/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.401
2 - accuracy: 0.8340
Epoch 47/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.401
2 - accuracy: 0.8340
Epoch 48/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.400
6 - accuracy: 0.8338
Epoch 49/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.400
9 - accuracy: 0.8328
Epoch 50/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.400
8 - accuracy: 0.8338
Epoch 51/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.400
5 - accuracy: 0.8348
Epoch 52/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.400
4 - accuracy: 0.8350
Epoch 53/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.400
4 - accuracy: 0.8355
Epoch 54/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.400
```

```
3 - accuracy: 0.8345
Epoch 55/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.400
3 - accuracy: 0.8358
Epoch 56/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.400
1 - accuracy: 0.8337
Epoch 57/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.400
4 - accuracy: 0.8348
Epoch 58/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.399
8 - accuracy: 0.8340
Epoch 59/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.400
0 - accuracy: 0.8348
Epoch 60/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.399
8 - accuracy: 0.8338
Epoch 61/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.400
1 - accuracy: 0.8342
Epoch 62/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.399
9 - accuracy: 0.8333
Epoch 63/100
6030/6030 [=====] - 1s 244us/sample - loss: 0.400
0 - accuracy: 0.8335
Epoch 64/100
6030/6030 [=====] - 2s 251us/sample - loss: 0.399
7 - accuracy: 0.8342
Epoch 65/100
6030/6030 [=====] - 1s 230us/sample - loss: 0.399
9 - accuracy: 0.8345
Epoch 66/100
6030/6030 [=====] - 2s 260us/sample - loss: 0.399
5 - accuracy: 0.8338
Epoch 67/100
6030/6030 [=====] - 1s 232us/sample - loss: 0.399
5 - accuracy: 0.8338
Epoch 68/100
6030/6030 [=====] - 1s 225us/sample - loss: 0.399
4 - accuracy: 0.8352
Epoch 69/100
6030/6030 [=====] - 1s 247us/sample - loss: 0.399
6 - accuracy: 0.8337
Epoch 70/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.399
7 - accuracy: 0.8343
Epoch 71/100
6030/6030 [=====] - 1s 224us/sample - loss: 0.399
4 - accuracy: 0.8353
Epoch 72/100
6030/6030 [=====] - 1s 233us/sample - loss: 0.399
5 - accuracy: 0.8367
Epoch 73/100
6030/6030 [=====] - 1s 233us/sample - loss: 0.399
5 - accuracy: 0.8338
Epoch 74/100
6030/6030 [=====] - 1s 228us/sample - loss: 0.399
1 - accuracy: 0.8345
```

Epoch 75/100  
6030/6030 [=====] - 1s 224us/sample - loss: 0.399  
4 - accuracy: 0.8348  
Epoch 76/100  
6030/6030 [=====] - 2s 263us/sample - loss: 0.398  
8 - accuracy: 0.8342  
Epoch 77/100  
6030/6030 [=====] - 1s 222us/sample - loss: 0.399  
4 - accuracy: 0.8355  
Epoch 78/100  
6030/6030 [=====] - 1s 231us/sample - loss: 0.399  
3 - accuracy: 0.8353  
Epoch 79/100  
6030/6030 [=====] - 1s 214us/sample - loss: 0.399  
3 - accuracy: 0.8350  
Epoch 80/100  
6030/6030 [=====] - 1s 218us/sample - loss: 0.398  
6 - accuracy: 0.8348  
Epoch 81/100  
6030/6030 [=====] - 1s 214us/sample - loss: 0.399  
6 - accuracy: 0.8338  
Epoch 82/100  
6030/6030 [=====] - 1s 214us/sample - loss: 0.399  
2 - accuracy: 0.8350  
Epoch 83/100  
6030/6030 [=====] - 1s 219us/sample - loss: 0.399  
3 - accuracy: 0.8330  
Epoch 84/100  
6030/6030 [=====] - 1s 214us/sample - loss: 0.399  
3 - accuracy: 0.8327  
Epoch 85/100  
6030/6030 [=====] - 1s 223us/sample - loss: 0.398  
8 - accuracy: 0.8358  
Epoch 86/100  
6030/6030 [=====] - 1s 229us/sample - loss: 0.399  
1 - accuracy: 0.8345  
Epoch 87/100  
6030/6030 [=====] - 1s 214us/sample - loss: 0.399  
0 - accuracy: 0.8342  
Epoch 88/100  
6030/6030 [=====] - 1s 214us/sample - loss: 0.398  
8 - accuracy: 0.8357  
Epoch 89/100  
6030/6030 [=====] - 1s 218us/sample - loss: 0.398  
7 - accuracy: 0.8343  
Epoch 90/100  
6030/6030 [=====] - 1s 217us/sample - loss: 0.398  
9 - accuracy: 0.8367  
Epoch 91/100  
6030/6030 [=====] - 1s 211us/sample - loss: 0.399  
2 - accuracy: 0.8345  
Epoch 92/100  
6030/6030 [=====] - 1s 217us/sample - loss: 0.399  
0 - accuracy: 0.8355  
Epoch 93/100  
6030/6030 [=====] - 1s 214us/sample - loss: 0.399  
0 - accuracy: 0.8337  
Epoch 94/100  
6030/6030 [=====] - 1s 215us/sample - loss: 0.398  
9 - accuracy: 0.8358  
Epoch 95/100

```
6030/6030 [=====] - 1s 214us/sample - loss: 0.399
0 - accuracy: 0.8342
Epoch 96/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.398
8 - accuracy: 0.8347
Epoch 97/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.398
8 - accuracy: 0.8347
Epoch 98/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.398
8 - accuracy: 0.8342
Epoch 99/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.399
1 - accuracy: 0.8352
Epoch 100/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.398
5 - accuracy: 0.8365
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 339us/sample - loss: 0.583
2 - accuracy: 0.7900
Epoch 2/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.451
0 - accuracy: 0.7910
Epoch 3/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.440
5 - accuracy: 0.7910
Epoch 4/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.435
7 - accuracy: 0.7910
Epoch 5/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.432
8 - accuracy: 0.7910
Epoch 6/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.429
4 - accuracy: 0.7910
Epoch 7/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.426
9 - accuracy: 0.7952
Epoch 8/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.424
7 - accuracy: 0.8171
Epoch 9/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.423
4 - accuracy: 0.8206 - loss: 0
Epoch 10/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.421
7 - accuracy: 0.8214
Epoch 11/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.420
6 - accuracy: 0.8239
Epoch 12/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.419
7 - accuracy: 0.8239
Epoch 13/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.418
8 - accuracy: 0.8262
Epoch 14/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.417
6 - accuracy: 0.8257
Epoch 15/100
```

```
6030/6030 [=====] - 1s 193us/sample - loss: 0.417
0 - accuracy: 0.8269
Epoch 16/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.416
0 - accuracy: 0.8265
Epoch 17/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.415
5 - accuracy: 0.8287
Epoch 18/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.414
6 - accuracy: 0.8297
Epoch 19/100
6030/6030 [=====] - 1s 244us/sample - loss: 0.414
3 - accuracy: 0.8297
Epoch 20/100
6030/6030 [=====] - 1s 225us/sample - loss: 0.413
3 - accuracy: 0.8305
Epoch 21/100
6030/6030 [=====] - 1s 235us/sample - loss: 0.413
7 - accuracy: 0.8303
Epoch 22/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.412
4 - accuracy: 0.8308
Epoch 23/100
6030/6030 [=====] - 1s 237us/sample - loss: 0.411
8 - accuracy: 0.8300
Epoch 24/100
6030/6030 [=====] - 1s 249us/sample - loss: 0.411
4 - accuracy: 0.8322
Epoch 25/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.411
2 - accuracy: 0.8313
Epoch 26/100
6030/6030 [=====] - 1s 226us/sample - loss: 0.410
2 - accuracy: 0.8295
Epoch 27/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.409
9 - accuracy: 0.8297
Epoch 28/100
6030/6030 [=====] - 1s 224us/sample - loss: 0.409
2 - accuracy: 0.8318
Epoch 29/100
6030/6030 [=====] - 1s 235us/sample - loss: 0.408
4 - accuracy: 0.8303
Epoch 30/100
6030/6030 [=====] - 1s 240us/sample - loss: 0.408
5 - accuracy: 0.8294
Epoch 31/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.407
9 - accuracy: 0.8307
Epoch 32/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.407
5 - accuracy: 0.8294
Epoch 33/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.406
8 - accuracy: 0.8294
Epoch 34/100
6030/6030 [=====] - 1s 220us/sample - loss: 0.406
3 - accuracy: 0.8299
Epoch 35/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.406
```



```
0 - accuracy: 0.8302
Epoch 36/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.405
5 - accuracy: 0.8299
Epoch 37/100
6030/6030 [=====] - 1s 220us/sample - loss: 0.405
2 - accuracy: 0.8302
Epoch 38/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.404
8 - accuracy: 0.8300
Epoch 39/100
6030/6030 [=====] - 1s 233us/sample - loss: 0.404
3 - accuracy: 0.8299
Epoch 40/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.404
4 - accuracy: 0.8299
Epoch 41/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.404
0 - accuracy: 0.8292
Epoch 42/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.403
9 - accuracy: 0.8294
Epoch 43/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.403
2 - accuracy: 0.8308
Epoch 44/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.403
3 - accuracy: 0.8302
Epoch 45/100
6030/6030 [=====] - 1s 230us/sample - loss: 0.403
4 - accuracy: 0.8310
Epoch 46/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.402
7 - accuracy: 0.8305
Epoch 47/100
6030/6030 [=====] - 1s 244us/sample - loss: 0.402
5 - accuracy: 0.8305
Epoch 48/100
6030/6030 [=====] - 2s 272us/sample - loss: 0.401
8 - accuracy: 0.8303
Epoch 49/100
6030/6030 [=====] - 2s 268us/sample - loss: 0.402
7 - accuracy: 0.8305
Epoch 50/100
6030/6030 [=====] - 2s 264us/sample - loss: 0.402
3 - accuracy: 0.8310
Epoch 51/100
6030/6030 [=====] - 2s 279us/sample - loss: 0.401
7 - accuracy: 0.8299
Epoch 52/100
6030/6030 [=====] - 2s 310us/sample - loss: 0.401
5 - accuracy: 0.8305
Epoch 53/100
6030/6030 [=====] - 2s 287us/sample - loss: 0.401
5 - accuracy: 0.8317
Epoch 54/100
6030/6030 [=====] - 2s 301us/sample - loss: 0.401
4 - accuracy: 0.8317
Epoch 55/100
6030/6030 [=====] - 2s 286us/sample - loss: 0.401
1 - accuracy: 0.8320
```

Epoch 56/100  
6030/6030 [=====] - 1s 216us/sample - loss: 0.401  
0 - accuracy: 0.8295  
Epoch 57/100  
6030/6030 [=====] - 1s 203us/sample - loss: 0.400  
4 - accuracy: 0.8302  
Epoch 58/100  
6030/6030 [=====] - 1s 228us/sample - loss: 0.400  
6 - accuracy: 0.8320  
Epoch 59/100  
6030/6030 [=====] - 1s 212us/sample - loss: 0.400  
5 - accuracy: 0.8325  
Epoch 60/100  
6030/6030 [=====] - 1s 212us/sample - loss: 0.400  
2 - accuracy: 0.8315  
Epoch 61/100  
6030/6030 [=====] - 1s 205us/sample - loss: 0.400  
7 - accuracy: 0.8318  
Epoch 62/100  
6030/6030 [=====] - 1s 229us/sample - loss: 0.400  
5 - accuracy: 0.8325  
Epoch 63/100  
6030/6030 [=====] - 1s 217us/sample - loss: 0.400  
0 - accuracy: 0.8303  
Epoch 64/100  
6030/6030 [=====] - 1s 205us/sample - loss: 0.399  
7 - accuracy: 0.8320  
Epoch 65/100  
6030/6030 [=====] - 1s 206us/sample - loss: 0.399  
8 - accuracy: 0.8327  
Epoch 66/100  
6030/6030 [=====] - 1s 210us/sample - loss: 0.400  
0 - accuracy: 0.8310  
Epoch 67/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.399  
5 - accuracy: 0.8312  
Epoch 68/100  
6030/6030 [=====] - 1s 202us/sample - loss: 0.399  
5 - accuracy: 0.8303  
Epoch 69/100  
6030/6030 [=====] - 1s 220us/sample - loss: 0.400  
0 - accuracy: 0.8320  
Epoch 70/100  
6030/6030 [=====] - 1s 201us/sample - loss: 0.399  
5 - accuracy: 0.8315  
Epoch 71/100  
6030/6030 [=====] - 1s 203us/sample - loss: 0.399  
5 - accuracy: 0.8322  
Epoch 72/100  
6030/6030 [=====] - 1s 205us/sample - loss: 0.399  
2 - accuracy: 0.8308  
Epoch 73/100  
6030/6030 [=====] - 1s 205us/sample - loss: 0.399  
0 - accuracy: 0.8323  
Epoch 74/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.399  
3 - accuracy: 0.8305  
Epoch 75/100  
6030/6030 [=====] - 1s 214us/sample - loss: 0.399  
8 - accuracy: 0.8320  
Epoch 76/100

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6030/6030 [=====] - 1s 226us/sample - loss: 0.399
3 - accuracy: 0.8325
Epoch 77/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.399
4 - accuracy: 0.8308
Epoch 78/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.399
0 - accuracy: 0.8328
Epoch 79/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.398
8 - accuracy: 0.8327
Epoch 80/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.398
9 - accuracy: 0.8308
Epoch 81/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.398
9 - accuracy: 0.8322
Epoch 82/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.399
0 - accuracy: 0.8318
Epoch 83/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.398
5 - accuracy: 0.8318
Epoch 84/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.398
6 - accuracy: 0.8335
Epoch 85/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.398
6 - accuracy: 0.8317
Epoch 86/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.398
6 - accuracy: 0.8315
Epoch 87/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.398
4 - accuracy: 0.8313
Epoch 88/100
6030/6030 [=====] - 1s 236us/sample - loss: 0.398
1 - accuracy: 0.8330
Epoch 89/100
6030/6030 [=====] - 1s 227us/sample - loss: 0.398
0 - accuracy: 0.8317
Epoch 90/100
6030/6030 [=====] - 1s 224us/sample - loss: 0.398
3 - accuracy: 0.8318
Epoch 91/100
6030/6030 [=====] - 1s 238us/sample - loss: 0.398
1 - accuracy: 0.8327
Epoch 92/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.398
1 - accuracy: 0.8327
Epoch 93/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.397
6 - accuracy: 0.8327
Epoch 94/100
6030/6030 [=====] - 1s 220us/sample - loss: 0.397
8 - accuracy: 0.8322
Epoch 95/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.397
6 - accuracy: 0.8332
Epoch 96/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.397
```

```
4 - accuracy: 0.8315
Epoch 97/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.397
1 - accuracy: 0.8330
Epoch 98/100
6030/6030 [=====] - 1s 218us/sample - loss: 0.396
9 - accuracy: 0.8330
Epoch 99/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.397
2 - accuracy: 0.8332
Epoch 100/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.396
9 - accuracy: 0.8328
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 383us/sample - loss: 0.587
2 - accuracy: 0.7934
Epoch 2/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.453
4 - accuracy: 0.7935
Epoch 3/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.436
1 - accuracy: 0.7935
Epoch 4/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.427
0 - accuracy: 0.7935
Epoch 5/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.420
1 - accuracy: 0.7935
Epoch 6/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.413
2 - accuracy: 0.7935
Epoch 7/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.405
5 - accuracy: 0.8053
Epoch 8/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.396
2 - accuracy: 0.8196
Epoch 9/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.386
1 - accuracy: 0.8426
Epoch 10/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.376
7 - accuracy: 0.8481
Epoch 11/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.368
3 - accuracy: 0.8539
Epoch 12/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.361
5 - accuracy: 0.8557
Epoch 13/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.357
0 - accuracy: 0.8562
Epoch 14/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.354
0 - accuracy: 0.8570
Epoch 15/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.351
6 - accuracy: 0.8580
Epoch 16/100
6030/6030 [=====] - 1s 224us/sample - loss: 0.350
```

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0 - accuracy: 0.8579
Epoch 17/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.348
8 - accuracy: 0.8577
Epoch 18/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.348
6 - accuracy: 0.8572
Epoch 19/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.347
7 - accuracy: 0.8590
Epoch 20/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.346
9 - accuracy: 0.8599
Epoch 21/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.346
9 - accuracy: 0.8594
Epoch 22/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.346
4 - accuracy: 0.8599
Epoch 23/100
6030/6030 [=====] - 1s 232us/sample - loss: 0.345
9 - accuracy: 0.8587
Epoch 24/100
6030/6030 [=====] - 1s 238us/sample - loss: 0.345
9 - accuracy: 0.8590
Epoch 25/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.345
0 - accuracy: 0.8585
Epoch 26/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.345
0 - accuracy: 0.8589
Epoch 27/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.344
8 - accuracy: 0.8597
Epoch 28/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.344
6 - accuracy: 0.8609
Epoch 29/100
6030/6030 [=====] - 1s 224us/sample - loss: 0.344
6 - accuracy: 0.8599
Epoch 30/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.344
4 - accuracy: 0.8592
Epoch 31/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.343
9 - accuracy: 0.8594
Epoch 32/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.344
1 - accuracy: 0.8600
Epoch 33/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.343
7 - accuracy: 0.8589
Epoch 34/100
6030/6030 [=====] - 1s 216us/sample - loss: 0.343
9 - accuracy: 0.8587
Epoch 35/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.343
5 - accuracy: 0.8599
Epoch 36/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.343
3 - accuracy: 0.8607
```

Epoch 37/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.343  
1 - accuracy: 0.8599  
Epoch 38/100  
6030/6030 [=====] - 1s 205us/sample - loss: 0.342  
7 - accuracy: 0.8599  
Epoch 39/100  
6030/6030 [=====] - 1s 187us/sample - loss: 0.342  
6 - accuracy: 0.8580  
Epoch 40/100  
6030/6030 [=====] - 1s 194us/sample - loss: 0.342  
5 - accuracy: 0.8599  
Epoch 41/100  
6030/6030 [=====] - 1s 187us/sample - loss: 0.342  
3 - accuracy: 0.8617  
Epoch 42/100  
6030/6030 [=====] - 1s 189us/sample - loss: 0.342  
0 - accuracy: 0.8610  
Epoch 43/100  
6030/6030 [=====] - 1s 212us/sample - loss: 0.341  
8 - accuracy: 0.8599  
Epoch 44/100  
6030/6030 [=====] - 1s 185us/sample - loss: 0.341  
9 - accuracy: 0.8580  
Epoch 45/100  
6030/6030 [=====] - 1s 194us/sample - loss: 0.341  
8 - accuracy: 0.8614  
Epoch 46/100  
6030/6030 [=====] - 1s 209us/sample - loss: 0.341  
6 - accuracy: 0.8605  
Epoch 47/100  
6030/6030 [=====] - 1s 212us/sample - loss: 0.341  
3 - accuracy: 0.8587  
Epoch 48/100  
6030/6030 [=====] - 1s 198us/sample - loss: 0.341  
6 - accuracy: 0.8600  
Epoch 49/100  
6030/6030 [=====] - 1s 206us/sample - loss: 0.341  
3 - accuracy: 0.8600  
Epoch 50/100  
6030/6030 [=====] - 1s 192us/sample - loss: 0.341  
2 - accuracy: 0.8630  
Epoch 51/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.341  
3 - accuracy: 0.8590  
Epoch 52/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.341  
2 - accuracy: 0.8614  
Epoch 53/100  
6030/6030 [=====] - 1s 202us/sample - loss: 0.341  
0 - accuracy: 0.8597  
Epoch 54/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.340  
6 - accuracy: 0.8620  
Epoch 55/100  
6030/6030 [=====] - 1s 192us/sample - loss: 0.340  
7 - accuracy: 0.8619  
Epoch 56/100  
6030/6030 [=====] - 1s 189us/sample - loss: 0.340  
5 - accuracy: 0.8599  
Epoch 57/100

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6030/6030 [=====] - 1s 190us/sample - loss: 0.340
6 - accuracy: 0.8617
Epoch 58/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.340
5 - accuracy: 0.8614
Epoch 59/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.340
2 - accuracy: 0.8605
Epoch 60/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.340
4 - accuracy: 0.8627
Epoch 61/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.340
2 - accuracy: 0.8612
Epoch 62/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.340
2 - accuracy: 0.8614
Epoch 63/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.339
8 - accuracy: 0.8604
Epoch 64/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.339
9 - accuracy: 0.8614
Epoch 65/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.339
2 - accuracy: 0.8622
Epoch 66/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.339
4 - accuracy: 0.8632
Epoch 67/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.340
5 - accuracy: 0.8627
Epoch 68/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.340
1 - accuracy: 0.8625
Epoch 69/100
6030/6030 [=====] - ETA: 0s - loss: 0.3389 - accuracy: 0.86 - 1s 211us/sample - loss: 0.3398 - accuracy: 0.8614
Epoch 70/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.339
6 - accuracy: 0.8609
Epoch 71/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.339
6 - accuracy: 0.8620
Epoch 72/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.339
4 - accuracy: 0.8624
Epoch 73/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.340
0 - accuracy: 0.8625
Epoch 74/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.339
1 - accuracy: 0.8619
Epoch 75/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.339
3 - accuracy: 0.8617
Epoch 76/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.339
9 - accuracy: 0.8604
Epoch 77/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.339
```

```
8 - accuracy: 0.8625
Epoch 78/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.339
7 - accuracy: 0.8600
Epoch 79/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.339
2 - accuracy: 0.8624
Epoch 80/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.339
1 - accuracy: 0.8629
Epoch 81/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.338
8 - accuracy: 0.8620
Epoch 82/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.339
5 - accuracy: 0.8622
Epoch 83/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.339
0 - accuracy: 0.8617
Epoch 84/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.339
2 - accuracy: 0.8629
Epoch 85/100
6030/6030 [=====] - 1s 245us/sample - loss: 0.339
6 - accuracy: 0.8607
Epoch 86/100
6030/6030 [=====] - 1s 226us/sample - loss: 0.339
6 - accuracy: 0.8584
Epoch 87/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.339
3 - accuracy: 0.8617
Epoch 88/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.339
0 - accuracy: 0.8617
Epoch 89/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.339
4 - accuracy: 0.8617
Epoch 90/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.339
3 - accuracy: 0.8624
Epoch 91/100
6030/6030 [=====] - 2s 295us/sample - loss: 0.339
2 - accuracy: 0.8609
Epoch 92/100
6030/6030 [=====] - 2s 269us/sample - loss: 0.339
1 - accuracy: 0.8619
Epoch 93/100
6030/6030 [=====] - 1s 239us/sample - loss: 0.339
5 - accuracy: 0.8610
Epoch 94/100
6030/6030 [=====] - 1s 249us/sample - loss: 0.339
0 - accuracy: 0.8617
Epoch 95/100
6030/6030 [=====] - 1s 242us/sample - loss: 0.339
3 - accuracy: 0.8614
Epoch 96/100
6030/6030 [=====] - 1s 247us/sample - loss: 0.339
2 - accuracy: 0.8594
Epoch 97/100
6030/6030 [=====] - 2s 260us/sample - loss: 0.339
2 - accuracy: 0.8610
```



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Epoch 98/100
6030/6030 [=====] - 2s 251us/sample - loss: 0.339
0 - accuracy: 0.8620
Epoch 99/100
6030/6030 [=====] - 2s 250us/sample - loss: 0.339
3 - accuracy: 0.8617
Epoch 100/100
6030/6030 [=====] - 2s 252us/sample - loss: 0.338
7 - accuracy: 0.8620
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 3s 439us/sample - loss: 0.607
5 - accuracy: 0.7929
Epoch 2/100
6030/6030 [=====] - 2s 260us/sample - loss: 0.461
3 - accuracy: 0.7925
Epoch 3/100
6030/6030 [=====] - 2s 261us/sample - loss: 0.443
1 - accuracy: 0.7925
Epoch 4/100
6030/6030 [=====] - 2s 260us/sample - loss: 0.437
8 - accuracy: 0.7925
Epoch 5/100
6030/6030 [=====] - 2s 254us/sample - loss: 0.434
8 - accuracy: 0.7925
Epoch 6/100
6030/6030 [=====] - 1s 245us/sample - loss: 0.432
1 - accuracy: 0.7925
Epoch 7/100
6030/6030 [=====] - 2s 256us/sample - loss: 0.429
4 - accuracy: 0.7925
Epoch 8/100
6030/6030 [=====] - 1s 232us/sample - loss: 0.427
2 - accuracy: 0.7925
Epoch 9/100
6030/6030 [=====] - 1s 233us/sample - loss: 0.425
1 - accuracy: 0.8141
Epoch 10/100
6030/6030 [=====] - 1s 238us/sample - loss: 0.423
7 - accuracy: 0.8206
Epoch 11/100
6030/6030 [=====] - 1s 233us/sample - loss: 0.422
6 - accuracy: 0.8229
Epoch 12/100
6030/6030 [=====] - 1s 234us/sample - loss: 0.421
6 - accuracy: 0.8250
Epoch 13/100
6030/6030 [=====] - 1s 233us/sample - loss: 0.420
6 - accuracy: 0.8260
Epoch 14/100
6030/6030 [=====] - 1s 233us/sample - loss: 0.419
4 - accuracy: 0.8254
Epoch 15/100
6030/6030 [=====] - 1s 234us/sample - loss: 0.418
7 - accuracy: 0.8285
Epoch 16/100
6030/6030 [=====] - 1s 234us/sample - loss: 0.418
1 - accuracy: 0.8269
Epoch 17/100
6030/6030 [=====] - 1s 233us/sample - loss: 0.417
0 - accuracy: 0.8289
```

Epoch 18/100  
6030/6030 [=====] - 1s 233us/sample - loss: 0.416  
4 - accuracy: 0.8295

Epoch 19/100  
6030/6030 [=====] - 1s 233us/sample - loss: 0.416  
0 - accuracy: 0.8289

Epoch 20/100  
6030/6030 [=====] - 1s 229us/sample - loss: 0.415  
4 - accuracy: 0.8294

Epoch 21/100  
6030/6030 [=====] - 1s 208us/sample - loss: 0.414  
8 - accuracy: 0.8295

Epoch 22/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.414  
6 - accuracy: 0.8303

Epoch 23/100  
6030/6030 [=====] - 1s 201us/sample - loss: 0.414  
0 - accuracy: 0.8302

Epoch 24/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.413  
9 - accuracy: 0.8290

Epoch 25/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.413  
4 - accuracy: 0.8302

Epoch 26/100  
6030/6030 [=====] - 1s 243us/sample - loss: 0.412  
8 - accuracy: 0.8302

Epoch 27/100  
6030/6030 [=====] - 1s 215us/sample - loss: 0.412  
5 - accuracy: 0.8302

Epoch 28/100  
6030/6030 [=====] - 1s 241us/sample - loss: 0.412  
6 - accuracy: 0.8300

Epoch 29/100  
6030/6030 [=====] - 1s 218us/sample - loss: 0.412  
2 - accuracy: 0.8313

Epoch 30/100  
6030/6030 [=====] - 1s 203us/sample - loss: 0.412  
2 - accuracy: 0.8305

Epoch 31/100  
6030/6030 [=====] - 1s 214us/sample - loss: 0.411  
7 - accuracy: 0.8303

Epoch 32/100  
6030/6030 [=====] - 1s 228us/sample - loss: 0.411  
2 - accuracy: 0.8313

Epoch 33/100  
6030/6030 [=====] - 1s 227us/sample - loss: 0.411  
3 - accuracy: 0.8297

Epoch 34/100  
6030/6030 [=====] - 1s 220us/sample - loss: 0.411  
1 - accuracy: 0.8292

Epoch 35/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.410  
7 - accuracy: 0.8299

Epoch 36/100  
6030/6030 [=====] - 1s 223us/sample - loss: 0.410  
5 - accuracy: 0.8308

Epoch 37/100  
6030/6030 [=====] - 1s 216us/sample - loss: 0.410  
4 - accuracy: 0.8307

Epoch 38/100

```
6030/6030 [=====] - 1s 234us/sample - loss: 0.410
4 - accuracy: 0.8303
Epoch 39/100
6030/6030 [=====] - 1s 225us/sample - loss: 0.410
0 - accuracy: 0.8305
Epoch 40/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.410
0 - accuracy: 0.8308
Epoch 41/100
6030/6030 [=====] - 1s 216us/sample - loss: 0.409
9 - accuracy: 0.8313
Epoch 42/100
6030/6030 [=====] - 1s 218us/sample - loss: 0.409
8 - accuracy: 0.8300
Epoch 43/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.409
7 - accuracy: 0.8302
Epoch 44/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.409
5 - accuracy: 0.8308
Epoch 45/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.409
4 - accuracy: 0.8310
Epoch 46/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.409
3 - accuracy: 0.8320
Epoch 47/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.408
9 - accuracy: 0.8289
Epoch 48/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.409
2 - accuracy: 0.8303
Epoch 49/100
6030/6030 [=====] - 1s 216us/sample - loss: 0.408
8 - accuracy: 0.8302
Epoch 50/100
6030/6030 [=====] - 1s 216us/sample - loss: 0.408
7 - accuracy: 0.8308
Epoch 51/100
6030/6030 [=====] - 1s 229us/sample - loss: 0.408
7 - accuracy: 0.8295
Epoch 52/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.408
5 - accuracy: 0.8307
Epoch 53/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.408
7 - accuracy: 0.8313
Epoch 54/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.407
9 - accuracy: 0.8302
Epoch 55/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.408
6 - accuracy: 0.8307
Epoch 56/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.407
7 - accuracy: 0.8325
Epoch 57/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.407
9 - accuracy: 0.8328
Epoch 58/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.407
```

```
8 - accuracy: 0.8295
Epoch 59/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.407
7 - accuracy: 0.8327
Epoch 60/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.407
6 - accuracy: 0.8315
Epoch 61/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.407
6 - accuracy: 0.8312
Epoch 62/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.407
3 - accuracy: 0.8327
Epoch 63/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.407
3 - accuracy: 0.8313
Epoch 64/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.407
3 - accuracy: 0.8305
Epoch 65/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.407
2 - accuracy: 0.8325
Epoch 66/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.406
7 - accuracy: 0.8312
Epoch 67/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.407
1 - accuracy: 0.8317
Epoch 68/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.406
8 - accuracy: 0.8323
Epoch 69/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.406
7 - accuracy: 0.8318
Epoch 70/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.406
5 - accuracy: 0.8323
Epoch 71/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.405
9 - accuracy: 0.8325
Epoch 72/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.406
5 - accuracy: 0.8335
Epoch 73/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.406
3 - accuracy: 0.8328
Epoch 74/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.406
2 - accuracy: 0.8308
Epoch 75/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.406
0 - accuracy: 0.8313
Epoch 76/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.405
5 - accuracy: 0.8320
Epoch 77/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.405
5 - accuracy: 0.8317
Epoch 78/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.405
4 - accuracy: 0.8327
```

Epoch 79/100  
6030/6030 [=====] - 1s 228us/sample - loss: 0.405  
5 - accuracy: 0.8327  
Epoch 80/100  
6030/6030 [=====] - 1s 190us/sample - loss: 0.405  
4 - accuracy: 0.8323  
Epoch 81/100  
6030/6030 [=====] - 1s 189us/sample - loss: 0.404  
8 - accuracy: 0.8320  
Epoch 82/100  
6030/6030 [=====] - 1s 192us/sample - loss: 0.404  
7 - accuracy: 0.8327  
Epoch 83/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.404  
9 - accuracy: 0.8328  
Epoch 84/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.404  
4 - accuracy: 0.8330  
Epoch 85/100  
6030/6030 [=====] - 1s 190us/sample - loss: 0.404  
2 - accuracy: 0.8340  
Epoch 86/100  
6030/6030 [=====] - 1s 198us/sample - loss: 0.404  
1 - accuracy: 0.8320  
Epoch 87/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.403  
7 - accuracy: 0.8315  
Epoch 88/100  
6030/6030 [=====] - 1s 191us/sample - loss: 0.403  
1 - accuracy: 0.8327  
Epoch 89/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.403  
2 - accuracy: 0.8335  
Epoch 90/100  
6030/6030 [=====] - 1s 227us/sample - loss: 0.403  
0 - accuracy: 0.8328  
Epoch 91/100  
6030/6030 [=====] - 1s 246us/sample - loss: 0.402  
9 - accuracy: 0.8328  
Epoch 92/100  
6030/6030 [=====] - 2s 254us/sample - loss: 0.402  
7 - accuracy: 0.8330  
Epoch 93/100  
6030/6030 [=====] - 2s 255us/sample - loss: 0.402  
6 - accuracy: 0.8335  
Epoch 94/100  
6030/6030 [=====] - 2s 253us/sample - loss: 0.402  
3 - accuracy: 0.8325  
Epoch 95/100  
6030/6030 [=====] - 1s 248us/sample - loss: 0.401  
8 - accuracy: 0.8332  
Epoch 96/100  
6030/6030 [=====] - 2s 260us/sample - loss: 0.401  
9 - accuracy: 0.8318  
Epoch 97/100  
6030/6030 [=====] - 2s 257us/sample - loss: 0.401  
7 - accuracy: 0.8325  
Epoch 98/100  
6030/6030 [=====] - 2s 255us/sample - loss: 0.401  
6 - accuracy: 0.8328  
Epoch 99/100

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6030/6030 [=====] - 1s 195us/sample - loss: 0.401
6 - accuracy: 0.8338
Epoch 100/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.400
6 - accuracy: 0.8347
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 308us/sample - loss: 0.589
3 - accuracy: 0.7876
Epoch 2/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.458
0 - accuracy: 0.7877
Epoch 3/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.446
0 - accuracy: 0.7877
Epoch 4/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.441
5 - accuracy: 0.7877
Epoch 5/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.437
9 - accuracy: 0.7877
Epoch 6/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.435
1 - accuracy: 0.7877
Epoch 7/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.432
8 - accuracy: 0.8003
Epoch 8/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.430
7 - accuracy: 0.8163
Epoch 9/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.429
5 - accuracy: 0.8196
Epoch 10/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.428
4 - accuracy: 0.8227
Epoch 11/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.427
2 - accuracy: 0.8221
Epoch 12/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.426
1 - accuracy: 0.8237
Epoch 13/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.425
0 - accuracy: 0.8260
Epoch 14/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.424
3 - accuracy: 0.8270
Epoch 15/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.423
3 - accuracy: 0.8259
Epoch 16/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.422
4 - accuracy: 0.8269
Epoch 17/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.421
7 - accuracy: 0.8285
Epoch 18/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.421
5 - accuracy: 0.8280
Epoch 19/100
```

```
6030/6030 [=====] - 1s 192us/sample - loss: 0.420
8 - accuracy: 0.8280
Epoch 20/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.420
3 - accuracy: 0.8285
Epoch 21/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.419
8 - accuracy: 0.8282
Epoch 22/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.419
4 - accuracy: 0.8282
Epoch 23/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.419
0 - accuracy: 0.8290
Epoch 24/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.418
4 - accuracy: 0.8289
Epoch 25/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.417
9 - accuracy: 0.8289
Epoch 26/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.417
6 - accuracy: 0.8290
Epoch 27/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.417
3 - accuracy: 0.8292
Epoch 28/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.417
0 - accuracy: 0.8275
Epoch 29/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.416
7 - accuracy: 0.8287
Epoch 30/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.416
4 - accuracy: 0.8289
Epoch 31/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.416
4 - accuracy: 0.8292
Epoch 32/100
6030/6030 [=====] - 1s 241us/sample - loss: 0.415
9 - accuracy: 0.8279
Epoch 33/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.415
6 - accuracy: 0.8294
Epoch 34/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.415
2 - accuracy: 0.8285
Epoch 35/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.415
3 - accuracy: 0.8284
Epoch 36/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.415
1 - accuracy: 0.8285
Epoch 37/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.414
6 - accuracy: 0.8292
Epoch 38/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.414
9 - accuracy: 0.8289
Epoch 39/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.414
```

```
4 - accuracy: 0.8289
Epoch 40/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.414
6 - accuracy: 0.8287
Epoch 41/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.413
9 - accuracy: 0.8297
Epoch 42/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.414
2 - accuracy: 0.8295
Epoch 43/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.414
2 - accuracy: 0.8294
Epoch 44/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.413
7 - accuracy: 0.8285
Epoch 45/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.413
5 - accuracy: 0.8284
Epoch 46/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.413
4 - accuracy: 0.8317
Epoch 47/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.413
8 - accuracy: 0.8295
Epoch 48/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.413
6 - accuracy: 0.8303
Epoch 49/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.413
5 - accuracy: 0.8289
Epoch 50/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.413
3 - accuracy: 0.8289
Epoch 51/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.413
0 - accuracy: 0.8299
Epoch 52/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.413
2 - accuracy: 0.8295
Epoch 53/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.412
5 - accuracy: 0.8299
Epoch 54/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.412
8 - accuracy: 0.8295
Epoch 55/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.412
8 - accuracy: 0.8313
Epoch 56/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.412
8 - accuracy: 0.8315
Epoch 57/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.412
5 - accuracy: 0.8299
Epoch 58/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.412
5 - accuracy: 0.8308
Epoch 59/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.412
2 - accuracy: 0.8313
```



```
Epoch 60/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.412
5 - accuracy: 0.8289
Epoch 61/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.412
3 - accuracy: 0.8300
Epoch 62/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.412
3 - accuracy: 0.8305
Epoch 63/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.412
2 - accuracy: 0.8307
Epoch 64/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.411
7 - accuracy: 0.8312
Epoch 65/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.411
8 - accuracy: 0.8292
Epoch 66/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.411
9 - accuracy: 0.8307
Epoch 67/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.412
0 - accuracy: 0.8312
Epoch 68/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.412
1 - accuracy: 0.8279
Epoch 69/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.411
8 - accuracy: 0.8290
Epoch 70/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.411
9 - accuracy: 0.8300
Epoch 71/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.411
6 - accuracy: 0.8317
Epoch 72/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.411
8 - accuracy: 0.8294 - loss: 0.4157 - accuracy
Epoch 73/100
6030/6030 [=====] - 2s 261us/sample - loss: 0.411
6 - accuracy: 0.8312
Epoch 74/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.411
3 - accuracy: 0.8292
Epoch 75/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.411
4 - accuracy: 0.8297
Epoch 76/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.411
2 - accuracy: 0.8294
Epoch 77/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.411
3 - accuracy: 0.8282
Epoch 78/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.411
2 - accuracy: 0.8308
Epoch 79/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.411
2 - accuracy: 0.8303
Epoch 80/100
```

```
6030/6030 [=====] - 1s 189us/sample - loss: 0.410
3 - accuracy: 0.8323
Epoch 81/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.411
4 - accuracy: 0.8308
Epoch 82/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.411
0 - accuracy: 0.8289
Epoch 83/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.411
1 - accuracy: 0.8307
Epoch 84/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.410
9 - accuracy: 0.8305
Epoch 85/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.410
7 - accuracy: 0.8295
Epoch 86/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.410
8 - accuracy: 0.8305
Epoch 87/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.410
7 - accuracy: 0.8287
Epoch 88/100
6030/6030 [=====] - 2s 249us/sample - loss: 0.411
1 - accuracy: 0.8300
Epoch 89/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.410
5 - accuracy: 0.8287
Epoch 90/100
6030/6030 [=====] - 1s 218us/sample - loss: 0.410
5 - accuracy: 0.8320
Epoch 91/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.410
6 - accuracy: 0.8312
Epoch 92/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.410
6 - accuracy: 0.8312
Epoch 93/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.410
2 - accuracy: 0.8312
Epoch 94/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.410
6 - accuracy: 0.8287
Epoch 95/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.410
3 - accuracy: 0.8310
Epoch 96/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.409
8 - accuracy: 0.8302
Epoch 97/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.410
0 - accuracy: 0.8303
Epoch 98/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.410
1 - accuracy: 0.8300
Epoch 99/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.409
8 - accuracy: 0.8310
Epoch 100/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.410
```

```
2 - accuracy: 0.8303
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 373us/sample - loss: 0.603
3 - accuracy: 0.7910
Epoch 2/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.456
1 - accuracy: 0.7912
Epoch 3/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.438
9 - accuracy: 0.7912
Epoch 4/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.431
7 - accuracy: 0.7912
Epoch 5/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.425
4 - accuracy: 0.7912
Epoch 6/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.418
8 - accuracy: 0.7912
Epoch 7/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.410
7 - accuracy: 0.7980
Epoch 8/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.402
6 - accuracy: 0.8136
Epoch 9/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.394
3 - accuracy: 0.8337
Epoch 10/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.386
7 - accuracy: 0.8396
Epoch 11/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.380
0 - accuracy: 0.8458
Epoch 12/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.374
7 - accuracy: 0.8456
Epoch 13/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.370
9 - accuracy: 0.8502
Epoch 14/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.367
3 - accuracy: 0.8507
Epoch 15/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.364
9 - accuracy: 0.8526
Epoch 16/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.363
4 - accuracy: 0.8552
Epoch 17/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.361
7 - accuracy: 0.8542
Epoch 18/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.360
6 - accuracy: 0.8539
Epoch 19/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.359
4 - accuracy: 0.8537
Epoch 20/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.358
```

```
4 - accuracy: 0.8542
Epoch 21/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.357
6 - accuracy: 0.8532
Epoch 22/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.357
0 - accuracy: 0.8532
Epoch 23/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.355
8 - accuracy: 0.8517
Epoch 24/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.356
0 - accuracy: 0.8552
Epoch 25/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.355
0 - accuracy: 0.8531
Epoch 26/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.354
4 - accuracy: 0.8532
Epoch 27/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.354
4 - accuracy: 0.8542
Epoch 28/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.353
5 - accuracy: 0.8542
Epoch 29/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.353
3 - accuracy: 0.8547
Epoch 30/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.353
0 - accuracy: 0.8534
Epoch 31/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.352
6 - accuracy: 0.8546
Epoch 32/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.352
2 - accuracy: 0.8561
Epoch 33/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.351
8 - accuracy: 0.8556
Epoch 34/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.351
3 - accuracy: 0.8552
Epoch 35/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.351
0 - accuracy: 0.8570
Epoch 36/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.351
1 - accuracy: 0.8554
Epoch 37/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.350
4 - accuracy: 0.8552
Epoch 38/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.350
0 - accuracy: 0.8552
Epoch 39/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.350
2 - accuracy: 0.8552
Epoch 40/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.349
3 - accuracy: 0.8552
```

Epoch 41/100  
6030/6030 [=====] - 1s 191us/sample - loss: 0.349  
4 - accuracy: 0.8556  
Epoch 42/100  
6030/6030 [=====] - 1s 198us/sample - loss: 0.348  
5 - accuracy: 0.8564  
Epoch 43/100  
6030/6030 [=====] - 1s 193us/sample - loss: 0.348  
7 - accuracy: 0.8585  
Epoch 44/100  
6030/6030 [=====] - 1s 190us/sample - loss: 0.348  
3 - accuracy: 0.8574  
Epoch 45/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.348  
3 - accuracy: 0.8557  
Epoch 46/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.347  
9 - accuracy: 0.8575  
Epoch 47/100  
6030/6030 [=====] - 1s 193us/sample - loss: 0.347  
9 - accuracy: 0.8536  
Epoch 48/100  
6030/6030 [=====] - 1s 202us/sample - loss: 0.347  
6 - accuracy: 0.8559  
Epoch 49/100  
6030/6030 [=====] - 1s 189us/sample - loss: 0.347  
5 - accuracy: 0.8559  
Epoch 50/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.347  
3 - accuracy: 0.8559  
Epoch 51/100  
6030/6030 [=====] - 1s 187us/sample - loss: 0.347  
2 - accuracy: 0.8572  
Epoch 52/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.347  
1 - accuracy: 0.8552  
Epoch 53/100  
6030/6030 [=====] - 1s 194us/sample - loss: 0.347  
1 - accuracy: 0.8551  
Epoch 54/100  
6030/6030 [=====] - 1s 187us/sample - loss: 0.346  
4 - accuracy: 0.8567  
Epoch 55/100  
6030/6030 [=====] - 1s 192us/sample - loss: 0.345  
8 - accuracy: 0.8580  
Epoch 56/100  
6030/6030 [=====] - 1s 189us/sample - loss: 0.346  
8 - accuracy: 0.8556  
Epoch 57/100  
6030/6030 [=====] - 1s 189us/sample - loss: 0.346  
0 - accuracy: 0.8577  
Epoch 58/100  
6030/6030 [=====] - 1s 187us/sample - loss: 0.346  
1 - accuracy: 0.8559  
Epoch 59/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.346  
3 - accuracy: 0.8570  
Epoch 60/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.346  
2 - accuracy: 0.8556  
Epoch 61/100

```
6030/6030 [=====] - 1s 189us/sample - loss: 0.346
1 - accuracy: 0.8564
Epoch 62/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.345
8 - accuracy: 0.8567
Epoch 63/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.345
9 - accuracy: 0.8592
Epoch 64/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.345
5 - accuracy: 0.8552
Epoch 65/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.346
1 - accuracy: 0.8556
Epoch 66/100
6030/6030 [=====] - 1s 218us/sample - loss: 0.346
0 - accuracy: 0.8566
Epoch 67/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.345
8 - accuracy: 0.8557
Epoch 68/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.345
7 - accuracy: 0.8569
Epoch 69/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.345
7 - accuracy: 0.8564
Epoch 70/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.345
8 - accuracy: 0.8572
Epoch 71/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.345
1 - accuracy: 0.8579
Epoch 72/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.345
3 - accuracy: 0.8577
Epoch 73/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.345
0 - accuracy: 0.8572
Epoch 74/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.345
2 - accuracy: 0.8561
Epoch 75/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.344
7 - accuracy: 0.8584
Epoch 76/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.345
3 - accuracy: 0.8562
Epoch 77/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.345
0 - accuracy: 0.8577
Epoch 78/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.344
8 - accuracy: 0.8577
Epoch 79/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.345
0 - accuracy: 0.8554
Epoch 80/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.344
6 - accuracy: 0.8569
Epoch 81/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.345
```

```
1 - accuracy: 0.8566
Epoch 82/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.345
1 - accuracy: 0.8567
Epoch 83/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.344
5 - accuracy: 0.8580
Epoch 84/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.344
8 - accuracy: 0.8564
Epoch 85/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.345
1 - accuracy: 0.8561
Epoch 86/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.344
8 - accuracy: 0.8582
Epoch 87/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.344
5 - accuracy: 0.8582
Epoch 88/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.344
9 - accuracy: 0.8575
Epoch 89/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.344
4 - accuracy: 0.8590
Epoch 90/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.344
6 - accuracy: 0.8575
Epoch 91/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.344
2 - accuracy: 0.8577
Epoch 92/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.344
7 - accuracy: 0.8561
Epoch 93/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.344
4 - accuracy: 0.8574
Epoch 94/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.344
3 - accuracy: 0.8566
Epoch 95/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.344
3 - accuracy: 0.8585
Epoch 96/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.344
6 - accuracy: 0.8585
Epoch 97/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.343
8 - accuracy: 0.8572
Epoch 98/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.344
6 - accuracy: 0.8589
Epoch 99/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.344
2 - accuracy: 0.8577
Epoch 100/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.344
2 - accuracy: 0.8577
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 288us/sample - loss: 0.639
```

```
2 - accuracy: 0.7909
Epoch 2/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.503
5 - accuracy: 0.7934
Epoch 3/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.450
5 - accuracy: 0.7934
Epoch 4/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.439
8 - accuracy: 0.7934
Epoch 5/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.435
2 - accuracy: 0.7934
Epoch 6/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.432
0 - accuracy: 0.7934
Epoch 7/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.429
6 - accuracy: 0.7934
Epoch 8/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.426
9 - accuracy: 0.7934
Epoch 9/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.424
1 - accuracy: 0.7977
Epoch 10/100
6030/6030 [=====] - 1s 216us/sample - loss: 0.421
4 - accuracy: 0.8260
Epoch 11/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.418
6 - accuracy: 0.8284
Epoch 12/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.415
5 - accuracy: 0.8317
Epoch 13/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.413
0 - accuracy: 0.8320
Epoch 14/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.411
3 - accuracy: 0.8328
Epoch 15/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.409
5 - accuracy: 0.8317
Epoch 16/100
6030/6030 [=====] - ETA: 0s - loss: 0.4077 - accu
racy: 0.83 - 1s 217us/sample - loss: 0.4081 - accuracy: 0.8323
Epoch 17/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.406
8 - accuracy: 0.8322
Epoch 18/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.405
5 - accuracy: 0.8312
Epoch 19/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.405
2 - accuracy: 0.8325
Epoch 20/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.404
2 - accuracy: 0.8328
Epoch 21/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.403
4 - accuracy: 0.8312
```



Epoch 22/100  
6030/6030 [=====] - 1s 190us/sample - loss: 0.402  
9 - accuracy: 0.8327

Epoch 23/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.402  
3 - accuracy: 0.8348

Epoch 24/100  
6030/6030 [=====] - 1s 191us/sample - loss: 0.401  
8 - accuracy: 0.8312

Epoch 25/100  
6030/6030 [=====] - 1s 182us/sample - loss: 0.401  
4 - accuracy: 0.8343

Epoch 26/100  
6030/6030 [=====] - 1s 193us/sample - loss: 0.401  
1 - accuracy: 0.8325

Epoch 27/100  
6030/6030 [=====] - 1s 194us/sample - loss: 0.400  
5 - accuracy: 0.8327

Epoch 28/100  
6030/6030 [=====] - 1s 190us/sample - loss: 0.400  
4 - accuracy: 0.8333

Epoch 29/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.399  
9 - accuracy: 0.8345

Epoch 30/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.399  
8 - accuracy: 0.8333

Epoch 31/100  
6030/6030 [=====] - 1s 182us/sample - loss: 0.399  
5 - accuracy: 0.8343

Epoch 32/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.399  
1 - accuracy: 0.8333

Epoch 33/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.398  
7 - accuracy: 0.8342

Epoch 34/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.398  
8 - accuracy: 0.8340

Epoch 35/100  
6030/6030 [=====] - 1s 187us/sample - loss: 0.398  
1 - accuracy: 0.8343

Epoch 36/100  
6030/6030 [=====] - 1s 218us/sample - loss: 0.398  
4 - accuracy: 0.8340

Epoch 37/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.398  
1 - accuracy: 0.8343

Epoch 38/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.397  
9 - accuracy: 0.8347

Epoch 39/100  
6030/6030 [=====] - 1s 193us/sample - loss: 0.397  
6 - accuracy: 0.8340

Epoch 40/100  
6030/6030 [=====] - 2s 256us/sample - loss: 0.397  
8 - accuracy: 0.8347

Epoch 41/100  
6030/6030 [=====] - 1s 187us/sample - loss: 0.397  
6 - accuracy: 0.8348

Epoch 42/100

```
6030/6030 [=====] - 1s 195us/sample - loss: 0.397
3 - accuracy: 0.8340
Epoch 43/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.397
3 - accuracy: 0.8358
Epoch 44/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.397
0 - accuracy: 0.8348
Epoch 45/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.397
0 - accuracy: 0.8343
Epoch 46/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.396
7 - accuracy: 0.8367
Epoch 47/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.396
6 - accuracy: 0.8371
Epoch 48/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.396
5 - accuracy: 0.8340
Epoch 49/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.396
3 - accuracy: 0.8375
Epoch 50/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.396
3 - accuracy: 0.8345
Epoch 51/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.396
2 - accuracy: 0.8358
Epoch 52/100
6030/6030 [=====] - 2s 260us/sample - loss: 0.396
0 - accuracy: 0.8358
Epoch 53/100
6030/6030 [=====] - 2s 311us/sample - loss: 0.396
1 - accuracy: 0.8362
Epoch 54/100
6030/6030 [=====] - 2s 322us/sample - loss: 0.395
6 - accuracy: 0.8363
Epoch 55/100
6030/6030 [=====] - 2s 307us/sample - loss: 0.396
0 - accuracy: 0.8358
Epoch 56/100
6030/6030 [=====] - 2s 302us/sample - loss: 0.396
0 - accuracy: 0.8360
Epoch 57/100
6030/6030 [=====] - 2s 312us/sample - loss: 0.395
8 - accuracy: 0.8367
Epoch 58/100
6030/6030 [=====] - 2s 297us/sample - loss: 0.395
7 - accuracy: 0.8362
Epoch 59/100
6030/6030 [=====] - 1s 226us/sample - loss: 0.395
4 - accuracy: 0.8360
Epoch 60/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.395
6 - accuracy: 0.8362
Epoch 61/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.395
6 - accuracy: 0.8362
Epoch 62/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.395
```

```
6 - accuracy: 0.8355
Epoch 63/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.395
4 - accuracy: 0.8358
Epoch 64/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.395
1 - accuracy: 0.8370
Epoch 65/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.395
1 - accuracy: 0.8363
Epoch 66/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.395
1 - accuracy: 0.8375
Epoch 67/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.395
3 - accuracy: 0.8368
Epoch 68/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.395
2 - accuracy: 0.8375
Epoch 69/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.395
0 - accuracy: 0.8360
Epoch 70/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.395
0 - accuracy: 0.8376
Epoch 71/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.394
6 - accuracy: 0.8373
Epoch 72/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.394
7 - accuracy: 0.8376
Epoch 73/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.394
8 - accuracy: 0.8375
Epoch 74/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.394
7 - accuracy: 0.8385
Epoch 75/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.394
4 - accuracy: 0.8362
Epoch 76/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.394
7 - accuracy: 0.8371
Epoch 77/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.394
2 - accuracy: 0.8385
Epoch 78/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.394
4 - accuracy: 0.8373
Epoch 79/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.394
2 - accuracy: 0.8358
Epoch 80/100
6030/6030 [=====] - 1s 216us/sample - loss: 0.394
1 - accuracy: 0.8358
Epoch 81/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.394
1 - accuracy: 0.8360
Epoch 82/100
6030/6030 [=====] - 1s 225us/sample - loss: 0.393
7 - accuracy: 0.8380
```

```
Epoch 83/100
6030/6030 [=====] - 1s 239us/sample - loss: 0.393
6 - accuracy: 0.8357
Epoch 84/100
6030/6030 [=====] - 2s 249us/sample - loss: 0.393
7 - accuracy: 0.8378
Epoch 85/100
6030/6030 [=====] - 2s 287us/sample - loss: 0.393
8 - accuracy: 0.8378
Epoch 86/100
6030/6030 [=====] - 2s 269us/sample - loss: 0.393
5 - accuracy: 0.8371
Epoch 87/100
6030/6030 [=====] - 1s 229us/sample - loss: 0.393
3 - accuracy: 0.8375
Epoch 88/100
6030/6030 [=====] - 2s 256us/sample - loss: 0.393
3 - accuracy: 0.8376
Epoch 89/100
6030/6030 [=====] - 1s 248us/sample - loss: 0.393
5 - accuracy: 0.8352
Epoch 90/100
6030/6030 [=====] - 1s 221us/sample - loss: 0.393
0 - accuracy: 0.8371
Epoch 91/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.393
0 - accuracy: 0.8365
Epoch 92/100
6030/6030 [=====] - 1s 222us/sample - loss: 0.393
1 - accuracy: 0.8352
Epoch 93/100
6030/6030 [=====] - 1s 235us/sample - loss: 0.392
9 - accuracy: 0.8368
Epoch 94/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.392
9 - accuracy: 0.8368
Epoch 95/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.392
3 - accuracy: 0.8368
Epoch 96/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.392
8 - accuracy: 0.8368
Epoch 97/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.392
5 - accuracy: 0.8368
Epoch 98/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.392
7 - accuracy: 0.8371
Epoch 99/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.392
2 - accuracy: 0.8373
Epoch 100/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.392
3 - accuracy: 0.8396
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 268us/sample - loss: 0.607
4 - accuracy: 0.7914
Epoch 2/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.462
3 - accuracy: 0.7920
```

Epoch 3/100  
6030/6030 [=====] - 1s 184us/sample - loss: 0.442  
8 - accuracy: 0.7920

Epoch 4/100  
6030/6030 [=====] - 1s 184us/sample - loss: 0.436  
8 - accuracy: 0.7920

Epoch 5/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.432  
6 - accuracy: 0.7920

Epoch 6/100  
6030/6030 [=====] - 1s 185us/sample - loss: 0.429  
4 - accuracy: 0.7920

Epoch 7/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.426  
2 - accuracy: 0.7992

Epoch 8/100  
6030/6030 [=====] - 1s 185us/sample - loss: 0.422  
9 - accuracy: 0.8202

Epoch 9/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.420  
3 - accuracy: 0.8234

Epoch 10/100  
6030/6030 [=====] - 1s 193us/sample - loss: 0.418  
0 - accuracy: 0.8284

Epoch 11/100  
6030/6030 [=====] - 1s 232us/sample - loss: 0.415  
4 - accuracy: 0.8292

Epoch 12/100  
6030/6030 [=====] - 1s 229us/sample - loss: 0.413  
8 - accuracy: 0.8282

Epoch 13/100  
6030/6030 [=====] - 1s 201us/sample - loss: 0.412  
4 - accuracy: 0.8302

Epoch 14/100  
6030/6030 [=====] - 1s 193us/sample - loss: 0.410  
8 - accuracy: 0.8285

Epoch 15/100  
6030/6030 [=====] - 1s 197us/sample - loss: 0.409  
5 - accuracy: 0.8295

Epoch 16/100  
6030/6030 [=====] - 1s 218us/sample - loss: 0.408  
5 - accuracy: 0.8294

Epoch 17/100  
6030/6030 [=====] - 1s 225us/sample - loss: 0.407  
6 - accuracy: 0.8289

Epoch 18/100  
6030/6030 [=====] - 1s 247us/sample - loss: 0.406  
7 - accuracy: 0.8299

Epoch 19/100  
6030/6030 [=====] - 2s 255us/sample - loss: 0.405  
6 - accuracy: 0.8287

Epoch 20/100  
6030/6030 [=====] - 2s 250us/sample - loss: 0.405  
3 - accuracy: 0.8279

Epoch 21/100  
6030/6030 [=====] - 1s 218us/sample - loss: 0.404  
3 - accuracy: 0.8300

Epoch 22/100  
6030/6030 [=====] - 1s 227us/sample - loss: 0.404  
1 - accuracy: 0.8300

Epoch 23/100

```
6030/6030 [=====] - 1s 234us/sample - loss: 0.403
6 - accuracy: 0.8297
Epoch 24/100
6030/6030 [=====] - 1s 235us/sample - loss: 0.402
9 - accuracy: 0.8317
Epoch 25/100
6030/6030 [=====] - 2s 272us/sample - loss: 0.403
2 - accuracy: 0.8307
Epoch 26/100
6030/6030 [=====] - 2s 252us/sample - loss: 0.402
5 - accuracy: 0.8312
Epoch 27/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.402
7 - accuracy: 0.8287
Epoch 28/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.402
1 - accuracy: 0.8294
Epoch 29/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.401
8 - accuracy: 0.8303
Epoch 30/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.401
8 - accuracy: 0.8312
Epoch 31/100
6030/6030 [=====] - 1s 237us/sample - loss: 0.401
6 - accuracy: 0.8307
Epoch 32/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.401
3 - accuracy: 0.8300
Epoch 33/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.401
0 - accuracy: 0.8320
Epoch 34/100
6030/6030 [=====] - 1s 247us/sample - loss: 0.400
9 - accuracy: 0.8320
Epoch 35/100
6030/6030 [=====] - 2s 288us/sample - loss: 0.400
8 - accuracy: 0.8307
Epoch 36/100
6030/6030 [=====] - 2s 276us/sample - loss: 0.400
4 - accuracy: 0.8313
Epoch 37/100
6030/6030 [=====] - 1s 241us/sample - loss: 0.400
4 - accuracy: 0.8303
Epoch 38/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.400
0 - accuracy: 0.8308
Epoch 39/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.400
0 - accuracy: 0.8307
Epoch 40/100
6030/6030 [=====] - 2s 274us/sample - loss: 0.399
4 - accuracy: 0.8308
Epoch 41/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.399
4 - accuracy: 0.8325
Epoch 42/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.399
3 - accuracy: 0.8322
Epoch 43/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.399
```

```
0 - accuracy: 0.8325
Epoch 44/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.399
0 - accuracy: 0.8328
Epoch 45/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.398
7 - accuracy: 0.8318
Epoch 46/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.398
5 - accuracy: 0.8330
Epoch 47/100
6030/6030 [=====] - 1s 228us/sample - loss: 0.398
2 - accuracy: 0.8333
Epoch 48/100
6030/6030 [=====] - 1s 237us/sample - loss: 0.398
2 - accuracy: 0.8343
Epoch 49/100
6030/6030 [=====] - 1s 216us/sample - loss: 0.398
1 - accuracy: 0.8340
Epoch 50/100
6030/6030 [=====] - ETA: 0s - loss: 0.3968 - accuracy: 0.83 - 1s 234us/sample - loss: 0.3979 - accuracy: 0.8342
Epoch 51/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.397
7 - accuracy: 0.8355
Epoch 52/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.397
6 - accuracy: 0.8323
Epoch 53/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.396
9 - accuracy: 0.8340
Epoch 54/100
6030/6030 [=====] - 2s 250us/sample - loss: 0.397
3 - accuracy: 0.8343
Epoch 55/100
6030/6030 [=====] - 1s 226us/sample - loss: 0.397
1 - accuracy: 0.8350
Epoch 56/100
6030/6030 [=====] - 2s 259us/sample - loss: 0.397
0 - accuracy: 0.8327
Epoch 57/100
6030/6030 [=====] - 1s 239us/sample - loss: 0.397
0 - accuracy: 0.8345
Epoch 58/100
6030/6030 [=====] - 1s 221us/sample - loss: 0.396
7 - accuracy: 0.8358
Epoch 59/100
6030/6030 [=====] - 1s 227us/sample - loss: 0.397
0 - accuracy: 0.8332
Epoch 60/100
6030/6030 [=====] - 1s 246us/sample - loss: 0.396
4 - accuracy: 0.8353
Epoch 61/100
6030/6030 [=====] - 1s 218us/sample - loss: 0.396
6 - accuracy: 0.8350
Epoch 62/100
6030/6030 [=====] - 1s 241us/sample - loss: 0.396
5 - accuracy: 0.8350
Epoch 63/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.396
0 - accuracy: 0.8365
```

Epoch 64/100  
6030/6030 [=====] - 1s 222us/sample - loss: 0.396  
1 - accuracy: 0.8342

Epoch 65/100  
6030/6030 [=====] - 1s 211us/sample - loss: 0.396  
1 - accuracy: 0.8365

Epoch 66/100  
6030/6030 [=====] - 1s 227us/sample - loss: 0.396  
3 - accuracy: 0.8340

Epoch 67/100  
6030/6030 [=====] - 1s 234us/sample - loss: 0.396  
0 - accuracy: 0.8348

Epoch 68/100  
6030/6030 [=====] - 2s 258us/sample - loss: 0.396  
2 - accuracy: 0.8353

Epoch 69/100  
6030/6030 [=====] - 1s 227us/sample - loss: 0.395  
7 - accuracy: 0.8342

Epoch 70/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.395  
7 - accuracy: 0.8335

Epoch 71/100  
6030/6030 [=====] - 1s 208us/sample - loss: 0.396  
0 - accuracy: 0.8342

Epoch 72/100  
6030/6030 [=====] - 1s 233us/sample - loss: 0.395  
6 - accuracy: 0.8362

Epoch 73/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.395  
9 - accuracy: 0.8338

Epoch 74/100  
6030/6030 [=====] - 1s 200us/sample - loss: 0.395  
9 - accuracy: 0.8338

Epoch 75/100  
6030/6030 [=====] - 1s 210us/sample - loss: 0.395  
8 - accuracy: 0.8348

Epoch 76/100  
6030/6030 [=====] - 1s 216us/sample - loss: 0.395  
5 - accuracy: 0.8362

Epoch 77/100  
6030/6030 [=====] - 1s 197us/sample - loss: 0.395  
6 - accuracy: 0.8342

Epoch 78/100  
6030/6030 [=====] - 1s 224us/sample - loss: 0.395  
6 - accuracy: 0.8360

Epoch 79/100  
6030/6030 [=====] - 1s 236us/sample - loss: 0.395  
6 - accuracy: 0.8328

Epoch 80/100  
6030/6030 [=====] - 1s 209us/sample - loss: 0.395  
3 - accuracy: 0.8362

Epoch 81/100  
6030/6030 [=====] - 1s 240us/sample - loss: 0.395  
4 - accuracy: 0.8352

Epoch 82/100  
6030/6030 [=====] - 2s 273us/sample - loss: 0.395  
5 - accuracy: 0.8323

Epoch 83/100  
6030/6030 [=====] - 2s 300us/sample - loss: 0.395  
4 - accuracy: 0.8343

Epoch 84/100



```
6030/6030 [=====] - 2s 259us/sample - loss: 0.395
5 - accuracy: 0.8348
Epoch 85/100
6030/6030 [=====] - 1s 245us/sample - loss: 0.395
4 - accuracy: 0.8338
Epoch 86/100
6030/6030 [=====] - 1s 225us/sample - loss: 0.395
2 - accuracy: 0.8337
Epoch 87/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.395
2 - accuracy: 0.8350
Epoch 88/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.394
9 - accuracy: 0.8337
Epoch 89/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.395
4 - accuracy: 0.8340
Epoch 90/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.395
4 - accuracy: 0.8353
Epoch 91/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.395
0 - accuracy: 0.8350
Epoch 92/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.395
1 - accuracy: 0.8355
Epoch 93/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.395
3 - accuracy: 0.8348
Epoch 94/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.395
3 - accuracy: 0.8353
Epoch 95/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.394
9 - accuracy: 0.8352
Epoch 96/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.394
9 - accuracy: 0.8345
Epoch 97/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.395
3 - accuracy: 0.8328
Epoch 98/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.395
0 - accuracy: 0.8347
Epoch 99/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.395
0 - accuracy: 0.8338
Epoch 100/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.395
0 - accuracy: 0.8337
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 323us/sample - loss: 0.599
7 - accuracy: 0.7889
Epoch 2/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.458
0 - accuracy: 0.7907
Epoch 3/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.443
2 - accuracy: 0.7907
Epoch 4/100
```

```
6030/6030 [=====] - 1s 208us/sample - loss: 0.438
9 - accuracy: 0.7907
Epoch 5/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.435
9 - accuracy: 0.7907
Epoch 6/100
6030/6030 [=====] - 1s 218us/sample - loss: 0.433
4 - accuracy: 0.7907
Epoch 7/100
6030/6030 [=====] - 1s 225us/sample - loss: 0.430
8 - accuracy: 0.7907
Epoch 8/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.428
5 - accuracy: 0.8012
Epoch 9/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.426
6 - accuracy: 0.8156
Epoch 10/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.425
0 - accuracy: 0.8196
Epoch 11/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.423
7 - accuracy: 0.8222
Epoch 12/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.422
2 - accuracy: 0.8257
Epoch 13/100
6030/6030 [=====] - 1s 225us/sample - loss: 0.421
2 - accuracy: 0.8284
Epoch 14/100
6030/6030 [=====] - 1s 243us/sample - loss: 0.420
3 - accuracy: 0.8292
Epoch 15/100
6030/6030 [=====] - 1s 240us/sample - loss: 0.419
4 - accuracy: 0.8289
Epoch 16/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.418
3 - accuracy: 0.8295
Epoch 17/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.417
7 - accuracy: 0.8289
Epoch 18/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.416
5 - accuracy: 0.8284
Epoch 19/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.416
5 - accuracy: 0.8302
Epoch 20/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.415
6 - accuracy: 0.8308
Epoch 21/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.415
3 - accuracy: 0.8300
Epoch 22/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.414
8 - accuracy: 0.8315
Epoch 23/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.414
1 - accuracy: 0.8308
Epoch 24/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.413
```

```
8 - accuracy: 0.8307
Epoch 25/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.413
4 - accuracy: 0.8317
Epoch 26/100
6030/6030 [=====] - 1s 216us/sample - loss: 0.413
0 - accuracy: 0.8327
Epoch 27/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.412
8 - accuracy: 0.8305
Epoch 28/100
6030/6030 [=====] - 1s 229us/sample - loss: 0.412
5 - accuracy: 0.8320
Epoch 29/100
6030/6030 [=====] - 1s 222us/sample - loss: 0.411
9 - accuracy: 0.8330
Epoch 30/100
6030/6030 [=====] - 2s 257us/sample - loss: 0.412
0 - accuracy: 0.8317
Epoch 31/100
6030/6030 [=====] - 1s 241us/sample - loss: 0.411
7 - accuracy: 0.8325
Epoch 32/100
6030/6030 [=====] - 2s 266us/sample - loss: 0.411
4 - accuracy: 0.8313
Epoch 33/100
6030/6030 [=====] - 2s 272us/sample - loss: 0.410
8 - accuracy: 0.8328
Epoch 34/100
6030/6030 [=====] - 2s 309us/sample - loss: 0.411
0 - accuracy: 0.8318
Epoch 35/100
6030/6030 [=====] - 1s 233us/sample - loss: 0.410
7 - accuracy: 0.8327
Epoch 36/100
6030/6030 [=====] - 1s 236us/sample - loss: 0.410
8 - accuracy: 0.8323
Epoch 37/100
6030/6030 [=====] - 1s 225us/sample - loss: 0.410
5 - accuracy: 0.8318
Epoch 38/100
6030/6030 [=====] - 1s 228us/sample - loss: 0.410
4 - accuracy: 0.8303
Epoch 39/100
6030/6030 [=====] - 1s 239us/sample - loss: 0.410
0 - accuracy: 0.8320
Epoch 40/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.409
8 - accuracy: 0.8318
Epoch 41/100
6030/6030 [=====] - 2s 311us/sample - loss: 0.409
8 - accuracy: 0.8323
Epoch 42/100
6030/6030 [=====] - 2s 253us/sample - loss: 0.409
7 - accuracy: 0.8315
Epoch 43/100
6030/6030 [=====] - 2s 302us/sample - loss: 0.409
6 - accuracy: 0.8308
Epoch 44/100
6030/6030 [=====] - 2s 283us/sample - loss: 0.409
1 - accuracy: 0.8330
```

Epoch 45/100  
6030/6030 [=====] - 2s 283us/sample - loss: 0.409  
4 - accuracy: 0.8325  
Epoch 46/100  
6030/6030 [=====] - 2s 253us/sample - loss: 0.408  
8 - accuracy: 0.8327  
Epoch 47/100  
6030/6030 [=====] - 1s 226us/sample - loss: 0.409  
0 - accuracy: 0.8313  
Epoch 48/100  
6030/6030 [=====] - 2s 277us/sample - loss: 0.408  
7 - accuracy: 0.8313  
Epoch 49/100  
6030/6030 [=====] - 2s 299us/sample - loss: 0.408  
7 - accuracy: 0.8320  
Epoch 50/100  
6030/6030 [=====] - 2s 296us/sample - loss: 0.408  
6 - accuracy: 0.8325  
Epoch 51/100  
6030/6030 [=====] - 2s 293us/sample - loss: 0.408  
7 - accuracy: 0.8313  
Epoch 52/100  
6030/6030 [=====] - 2s 340us/sample - loss: 0.408  
5 - accuracy: 0.8313  
Epoch 53/100  
6030/6030 [=====] - 2s 275us/sample - loss: 0.408  
4 - accuracy: 0.8323  
Epoch 54/100  
6030/6030 [=====] - 1s 224us/sample - loss: 0.408  
4 - accuracy: 0.8318  
Epoch 55/100  
6030/6030 [=====] - 1s 206us/sample - loss: 0.407  
8 - accuracy: 0.8317 - loss: 0.4057 - accuracy - ETA: 0s - loss: 0.4083 - ac  
Epoch 56/100  
6030/6030 [=====] - 1s 247us/sample - loss: 0.407  
8 - accuracy: 0.8313  
Epoch 57/100  
6030/6030 [=====] - 1s 228us/sample - loss: 0.407  
8 - accuracy: 0.8313  
Epoch 58/100  
6030/6030 [=====] - 1s 209us/sample - loss: 0.407  
2 - accuracy: 0.8327  
Epoch 59/100  
6030/6030 [=====] - 1s 239us/sample - loss: 0.407  
4 - accuracy: 0.8323 - loss: 0.4060 - accuracy:  
Epoch 60/100  
6030/6030 [=====] - 1s 223us/sample - loss: 0.407  
0 - accuracy: 0.8308  
Epoch 61/100  
6030/6030 [=====] - 1s 217us/sample - loss: 0.406  
9 - accuracy: 0.8313  
Epoch 62/100  
6030/6030 [=====] - 1s 213us/sample - loss: 0.406  
7 - accuracy: 0.8308  
Epoch 63/100  
6030/6030 [=====] - 1s 207us/sample - loss: 0.406  
3 - accuracy: 0.8315  
Epoch 64/100  
6030/6030 [=====] - 1s 201us/sample - loss: 0.405  
9 - accuracy: 0.8327  
Epoch 65/100

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6030/6030 [=====] - 1s 208us/sample - loss: 0.405
9 - accuracy: 0.8320
Epoch 66/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.405
5 - accuracy: 0.8317
Epoch 67/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.405
3 - accuracy: 0.8317
Epoch 68/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.404
9 - accuracy: 0.8322
Epoch 69/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.404
9 - accuracy: 0.8317
Epoch 70/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.404
5 - accuracy: 0.8318
Epoch 71/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.404
3 - accuracy: 0.8312
Epoch 72/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.404
1 - accuracy: 0.8325
Epoch 73/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.403
6 - accuracy: 0.8307
Epoch 74/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.403
8 - accuracy: 0.8323
Epoch 75/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.403
4 - accuracy: 0.8343
Epoch 76/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.403
2 - accuracy: 0.8335
Epoch 77/100
6030/6030 [=====] - 1s 248us/sample - loss: 0.402
8 - accuracy: 0.8312
Epoch 78/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.403
0 - accuracy: 0.8335
Epoch 79/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.403
0 - accuracy: 0.8318
Epoch 80/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.402
3 - accuracy: 0.8320
Epoch 81/100
6030/6030 [=====] - 1s 227us/sample - loss: 0.402
4 - accuracy: 0.8332
Epoch 82/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.402
4 - accuracy: 0.8315
Epoch 83/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.402
0 - accuracy: 0.8323
Epoch 84/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.401
9 - accuracy: 0.8323
Epoch 85/100
6030/6030 [=====] - 2s 261us/sample - loss: 0.401
```

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9 - accuracy: 0.8332
Epoch 86/100
6030/6030 [=====] - 2s 296us/sample - loss: 0.402
2 - accuracy: 0.8312
Epoch 87/100
6030/6030 [=====] - 2s 316us/sample - loss: 0.402
1 - accuracy: 0.8308
Epoch 88/100
6030/6030 [=====] - 2s 277us/sample - loss: 0.401
9 - accuracy: 0.8317
Epoch 89/100
6030/6030 [=====] - 2s 334us/sample - loss: 0.401
5 - accuracy: 0.8318 - loss: 0.4008 - accuracy - ETA: 0s - loss: 0.4043 -
Epoch 90/100
6030/6030 [=====] - 2s 338us/sample - loss: 0.401
3 - accuracy: 0.8307
Epoch 91/100
6030/6030 [=====] - 2s 286us/sample - loss: 0.401
5 - accuracy: 0.8322
Epoch 92/100
6030/6030 [=====] - 2s 366us/sample - loss: 0.401
1 - accuracy: 0.8315
Epoch 93/100
6030/6030 [=====] - 2s 282us/sample - loss: 0.400
9 - accuracy: 0.8320
Epoch 94/100
6030/6030 [=====] - 2s 315us/sample - loss: 0.400
9 - accuracy: 0.8308
Epoch 95/100
6030/6030 [=====] - 2s 253us/sample - loss: 0.400
1 - accuracy: 0.8308
Epoch 96/100
6030/6030 [=====] - 2s 281us/sample - loss: 0.400
7 - accuracy: 0.8313
Epoch 97/100
6030/6030 [=====] - 1s 225us/sample - loss: 0.400
7 - accuracy: 0.8322
Epoch 98/100
6030/6030 [=====] - 1s 234us/sample - loss: 0.400
5 - accuracy: 0.8315
Epoch 99/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.400
7 - accuracy: 0.8322
Epoch 100/100
6030/6030 [=====] - 2s 250us/sample - loss: 0.400
2 - accuracy: 0.8333
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 381us/sample - loss: 0.626
8 - accuracy: 0.7897
Epoch 2/100
6030/6030 [=====] - 2s 256us/sample - loss: 0.477
8 - accuracy: 0.7919
Epoch 3/100
6030/6030 [=====] - 2s 267us/sample - loss: 0.439
8 - accuracy: 0.7919
Epoch 4/100
6030/6030 [=====] - 2s 260us/sample - loss: 0.428
8 - accuracy: 0.8068
Epoch 5/100
6030/6030 [=====] - 2s 263us/sample - loss: 0.420
```

```
8 - accuracy: 0.8222
Epoch 6/100
6030/6030 [=====] - 2s 255us/sample - loss: 0.413
3 - accuracy: 0.8259
Epoch 7/100
6030/6030 [=====] - 2s 279us/sample - loss: 0.406
1 - accuracy: 0.8260
Epoch 8/100
6030/6030 [=====] - 2s 288us/sample - loss: 0.400
5 - accuracy: 0.8287
Epoch 9/100
6030/6030 [=====] - 2s 254us/sample - loss: 0.395
7 - accuracy: 0.8282
Epoch 10/100
6030/6030 [=====] - 1s 245us/sample - loss: 0.391
8 - accuracy: 0.8282
Epoch 11/100
6030/6030 [=====] - 1s 218us/sample - loss: 0.388
1 - accuracy: 0.8308
Epoch 12/100
6030/6030 [=====] - 2s 269us/sample - loss: 0.385
4 - accuracy: 0.8308
Epoch 13/100
6030/6030 [=====] - 2s 286us/sample - loss: 0.382
7 - accuracy: 0.8300
Epoch 14/100
6030/6030 [=====] - 2s 283us/sample - loss: 0.381
0 - accuracy: 0.8365
Epoch 15/100
6030/6030 [=====] - 2s 299us/sample - loss: 0.378
8 - accuracy: 0.8410
Epoch 16/100
6030/6030 [=====] - 2s 296us/sample - loss: 0.377
2 - accuracy: 0.8421
Epoch 17/100
6030/6030 [=====] - 2s 282us/sample - loss: 0.375
5 - accuracy: 0.8416
Epoch 18/100
6030/6030 [=====] - 1s 232us/sample - loss: 0.374
0 - accuracy: 0.8468
Epoch 19/100
6030/6030 [=====] - 2s 278us/sample - loss: 0.372
6 - accuracy: 0.8468
Epoch 20/100
6030/6030 [=====] - 2s 335us/sample - loss: 0.371
6 - accuracy: 0.8464
Epoch 21/100
6030/6030 [=====] - 1s 248us/sample - loss: 0.370
5 - accuracy: 0.8476
Epoch 22/100
6030/6030 [=====] - 1s 244us/sample - loss: 0.369
6 - accuracy: 0.8469
Epoch 23/100
6030/6030 [=====] - 1s 225us/sample - loss: 0.368
5 - accuracy: 0.8476
Epoch 24/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.367
6 - accuracy: 0.8478
Epoch 25/100
6030/6030 [=====] - 2s 261us/sample - loss: 0.366
7 - accuracy: 0.8481
```

Epoch 26/100  
6030/6030 [=====] - 2s 275us/sample - loss: 0.365  
5 - accuracy: 0.8489

Epoch 27/100  
6030/6030 [=====] - 2s 298us/sample - loss: 0.365  
2 - accuracy: 0.8496

Epoch 28/100  
6030/6030 [=====] - 2s 316us/sample - loss: 0.364  
4 - accuracy: 0.8493

Epoch 29/100  
6030/6030 [=====] - 2s 289us/sample - loss: 0.363  
7 - accuracy: 0.8499

Epoch 30/100  
6030/6030 [=====] - 1s 229us/sample - loss: 0.363  
4 - accuracy: 0.8498

Epoch 31/100  
6030/6030 [=====] - 1s 231us/sample - loss: 0.362  
3 - accuracy: 0.8494

Epoch 32/100  
6030/6030 [=====] - 2s 283us/sample - loss: 0.361  
7 - accuracy: 0.8498

Epoch 33/100  
6030/6030 [=====] - 1s 242us/sample - loss: 0.361  
0 - accuracy: 0.8498

Epoch 34/100  
6030/6030 [=====] - 2s 259us/sample - loss: 0.360  
5 - accuracy: 0.8509

Epoch 35/100  
6030/6030 [=====] - 1s 237us/sample - loss: 0.358  
4 - accuracy: 0.8494

Epoch 36/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.359  
0 - accuracy: 0.8491

Epoch 37/100  
6030/6030 [=====] - 1s 209us/sample - loss: 0.357  
9 - accuracy: 0.8514

Epoch 38/100  
6030/6030 [=====] - 1s 218us/sample - loss: 0.357  
2 - accuracy: 0.8494

Epoch 39/100  
6030/6030 [=====] - 1s 222us/sample - loss: 0.357  
0 - accuracy: 0.8514

Epoch 40/100  
6030/6030 [=====] - 1s 223us/sample - loss: 0.356  
5 - accuracy: 0.8499

Epoch 41/100  
6030/6030 [=====] - 2s 260us/sample - loss: 0.355  
6 - accuracy: 0.8536

Epoch 42/100  
6030/6030 [=====] - 2s 277us/sample - loss: 0.355  
4 - accuracy: 0.8524

Epoch 43/100  
6030/6030 [=====] - 2s 272us/sample - loss: 0.354  
8 - accuracy: 0.8521

Epoch 44/100  
6030/6030 [=====] - 1s 235us/sample - loss: 0.354  
4 - accuracy: 0.8554

Epoch 45/100  
6030/6030 [=====] - 2s 259us/sample - loss: 0.353  
9 - accuracy: 0.8516

Epoch 46/100



```
6030/6030 [=====] - 2s 255us/sample - loss: 0.353
0 - accuracy: 0.8524
Epoch 47/100
6030/6030 [=====] - 2s 294us/sample - loss: 0.352
8 - accuracy: 0.8534
Epoch 48/100
6030/6030 [=====] - 2s 277us/sample - loss: 0.352
9 - accuracy: 0.8511
Epoch 49/100
6030/6030 [=====] - 2s 260us/sample - loss: 0.352
7 - accuracy: 0.8527
Epoch 50/100
6030/6030 [=====] - 1s 245us/sample - loss: 0.351
7 - accuracy: 0.8514
Epoch 51/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.351
9 - accuracy: 0.8559
Epoch 52/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.350
9 - accuracy: 0.8517
Epoch 53/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.350
7 - accuracy: 0.8534
Epoch 54/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.350
8 - accuracy: 0.8554
Epoch 55/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.349
9 - accuracy: 0.8524
Epoch 56/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.350
4 - accuracy: 0.8542
Epoch 57/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.349
6 - accuracy: 0.8547
Epoch 58/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.348
6 - accuracy: 0.8541
Epoch 59/100
6030/6030 [=====] - 1s 224us/sample - loss: 0.348
8 - accuracy: 0.8536
Epoch 60/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.348
2 - accuracy: 0.8564
Epoch 61/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.348
5 - accuracy: 0.8552
Epoch 62/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.348
8 - accuracy: 0.8541
Epoch 63/100
6030/6030 [=====] - 1s 224us/sample - loss: 0.347
6 - accuracy: 0.8542
Epoch 64/100
6030/6030 [=====] - 1s 238us/sample - loss: 0.347
5 - accuracy: 0.8529
Epoch 65/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.347
4 - accuracy: 0.8542
Epoch 66/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.346
```

```
3 - accuracy: 0.8542
Epoch 67/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.347
1 - accuracy: 0.8547
Epoch 68/100
6030/6030 [=====] - 1s 224us/sample - loss: 0.346
2 - accuracy: 0.8557
Epoch 69/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.346
1 - accuracy: 0.8557
Epoch 70/100
6030/6030 [=====] - 2s 249us/sample - loss: 0.346
6 - accuracy: 0.8536
Epoch 71/100
6030/6030 [=====] - 1s 239us/sample - loss: 0.345
9 - accuracy: 0.8546
Epoch 72/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.346
2 - accuracy: 0.8546
Epoch 73/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.345
8 - accuracy: 0.8549
Epoch 74/100
6030/6030 [=====] - 1s 245us/sample - loss: 0.345
8 - accuracy: 0.8556
Epoch 75/100
6030/6030 [=====] - 2s 254us/sample - loss: 0.344
9 - accuracy: 0.8567
Epoch 76/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.345
4 - accuracy: 0.8549
Epoch 77/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.345
7 - accuracy: 0.8552
Epoch 78/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.345
2 - accuracy: 0.8547
Epoch 79/100
6030/6030 [=====] - 1s 222us/sample - loss: 0.344
9 - accuracy: 0.8537
Epoch 80/100
6030/6030 [=====] - 2s 261us/sample - loss: 0.345
4 - accuracy: 0.8544
Epoch 81/100
6030/6030 [=====] - 2s 297us/sample - loss: 0.344
4 - accuracy: 0.8554
Epoch 82/100
6030/6030 [=====] - 1s 236us/sample - loss: 0.344
1 - accuracy: 0.8561
Epoch 83/100
6030/6030 [=====] - 2s 256us/sample - loss: 0.344
5 - accuracy: 0.8574
Epoch 84/100
6030/6030 [=====] - 2s 250us/sample - loss: 0.344
0 - accuracy: 0.8554
Epoch 85/100
6030/6030 [=====] - 1s 227us/sample - loss: 0.343
7 - accuracy: 0.8552
Epoch 86/100
6030/6030 [=====] - 1s 216us/sample - loss: 0.343
6 - accuracy: 0.8562
```

Epoch 87/100  
6030/6030 [=====] - 2s 298us/sample - loss: 0.343  
5 - accuracy: 0.8562

Epoch 88/100  
6030/6030 [=====] - 1s 208us/sample - loss: 0.344  
1 - accuracy: 0.8532

Epoch 89/100  
6030/6030 [=====] - 1s 205us/sample - loss: 0.342  
7 - accuracy: 0.8532

Epoch 90/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.344  
2 - accuracy: 0.8542

Epoch 91/100  
6030/6030 [=====] - 1s 201us/sample - loss: 0.343  
4 - accuracy: 0.8549

Epoch 92/100  
6030/6030 [=====] - 1s 205us/sample - loss: 0.342  
8 - accuracy: 0.8570

Epoch 93/100  
6030/6030 [=====] - 1s 223us/sample - loss: 0.343  
0 - accuracy: 0.8567

Epoch 94/100  
6030/6030 [=====] - 1s 200us/sample - loss: 0.343  
3 - accuracy: 0.8557

Epoch 95/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.343  
4 - accuracy: 0.8551

Epoch 96/100  
6030/6030 [=====] - 1s 211us/sample - loss: 0.342  
5 - accuracy: 0.8575

Epoch 97/100  
6030/6030 [=====] - 1s 197us/sample - loss: 0.342  
6 - accuracy: 0.8544

Epoch 98/100  
6030/6030 [=====] - 1s 208us/sample - loss: 0.341  
8 - accuracy: 0.8587

Epoch 99/100  
6030/6030 [=====] - 1s 227us/sample - loss: 0.342  
8 - accuracy: 0.8531

Epoch 100/100  
6030/6030 [=====] - 1s 228us/sample - loss: 0.341  
7 - accuracy: 0.8562

Train on 6030 samples

Epoch 1/500  
6030/6030 [=====] - 2s 308us/sample - loss: 0.601  
7 - accuracy: 0.7939

Epoch 2/500  
6030/6030 [=====] - 1s 233us/sample - loss: 0.448  
3 - accuracy: 0.7954

Epoch 3/500  
6030/6030 [=====] - 1s 228us/sample - loss: 0.435  
1 - accuracy: 0.7954

Epoch 4/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.430  
7 - accuracy: 0.7954

Epoch 5/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.427  
9 - accuracy: 0.7954

Epoch 6/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.425  
4 - accuracy: 0.7954

Epoch 7/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.423  
2 - accuracy: 0.7954  
Epoch 8/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.421  
0 - accuracy: 0.7954  
Epoch 9/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.419  
1 - accuracy: 0.8081  
Epoch 10/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.417  
6 - accuracy: 0.8231  
Epoch 11/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.416  
3 - accuracy: 0.8250  
Epoch 12/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.415  
0 - accuracy: 0.8270  
Epoch 13/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.414  
1 - accuracy: 0.8300  
Epoch 14/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.412  
9 - accuracy: 0.8290  
Epoch 15/500  
6030/6030 [=====] - 1s 221us/sample - loss: 0.412  
3 - accuracy: 0.8317  
Epoch 16/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.411  
3 - accuracy: 0.8317  
Epoch 17/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.410  
9 - accuracy: 0.8318  
Epoch 18/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.410  
1 - accuracy: 0.8325  
Epoch 19/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.409  
4 - accuracy: 0.8327  
Epoch 20/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.409  
0 - accuracy: 0.8342  
Epoch 21/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.408  
6 - accuracy: 0.8323  
Epoch 22/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.408  
3 - accuracy: 0.8332  
Epoch 23/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.407  
7 - accuracy: 0.8327  
Epoch 24/500  
6030/6030 [=====] - 1s 168us/sample - loss: 0.407  
7 - accuracy: 0.8337  
Epoch 25/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.407  
0 - accuracy: 0.8335  
Epoch 26/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.406  
8 - accuracy: 0.8333  
Epoch 27/500

```
6030/6030 [=====] - 1s 184us/sample - loss: 0.406
6 - accuracy: 0.8327
Epoch 28/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.406
2 - accuracy: 0.8328
Epoch 29/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.406
0 - accuracy: 0.8332
Epoch 30/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.405
7 - accuracy: 0.8347
Epoch 31/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.405
3 - accuracy: 0.8318
Epoch 32/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.405
0 - accuracy: 0.8330
Epoch 33/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.404
7 - accuracy: 0.8312
Epoch 34/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.404
6 - accuracy: 0.8327
Epoch 35/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.404
3 - accuracy: 0.8345
Epoch 36/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.403
9 - accuracy: 0.8328
Epoch 37/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.403
9 - accuracy: 0.8342
Epoch 38/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.403
4 - accuracy: 0.8335
Epoch 39/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.403
5 - accuracy: 0.8328
Epoch 40/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.403
1 - accuracy: 0.8332
Epoch 41/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.402
7 - accuracy: 0.8330
Epoch 42/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.402
9 - accuracy: 0.8328
Epoch 43/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.402
6 - accuracy: 0.8337
Epoch 44/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.402
4 - accuracy: 0.8332
Epoch 45/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.402
4 - accuracy: 0.8332
Epoch 46/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.402
5 - accuracy: 0.8342
Epoch 47/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.402
```

```
3 - accuracy: 0.8340
Epoch 48/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.402
1 - accuracy: 0.8335
Epoch 49/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.401
8 - accuracy: 0.8327
Epoch 50/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.401
8 - accuracy: 0.8330
Epoch 51/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.401
7 - accuracy: 0.8342
Epoch 52/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.401
6 - accuracy: 0.8333
Epoch 53/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.401
8 - accuracy: 0.8330
Epoch 54/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.401
6 - accuracy: 0.8340
Epoch 55/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.401
5 - accuracy: 0.8333
Epoch 56/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.401
4 - accuracy: 0.8342
Epoch 57/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.401
3 - accuracy: 0.8327
Epoch 58/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.401
3 - accuracy: 0.8333
Epoch 59/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.401
2 - accuracy: 0.8333
Epoch 60/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.401
0 - accuracy: 0.8342
Epoch 61/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.400
9 - accuracy: 0.8340
Epoch 62/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.400
9 - accuracy: 0.8338
Epoch 63/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.400
8 - accuracy: 0.8340
Epoch 64/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.400
8 - accuracy: 0.8335
Epoch 65/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.400
7 - accuracy: 0.8325
Epoch 66/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.400
8 - accuracy: 0.8348
Epoch 67/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.400
7 - accuracy: 0.8337
```

```
Epoch 68/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.400
8 - accuracy: 0.8333
Epoch 69/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.400
6 - accuracy: 0.8327
Epoch 70/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.400
6 - accuracy: 0.8348
Epoch 71/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.400
7 - accuracy: 0.8330
Epoch 72/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.400
5 - accuracy: 0.8332
Epoch 73/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.400
6 - accuracy: 0.8342
Epoch 74/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.400
5 - accuracy: 0.8345
Epoch 75/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.400
4 - accuracy: 0.8340
Epoch 76/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.400
6 - accuracy: 0.8342
Epoch 77/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.400
3 - accuracy: 0.8338
Epoch 78/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.400
4 - accuracy: 0.8343
Epoch 79/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.400
4 - accuracy: 0.8333
Epoch 80/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.400
5 - accuracy: 0.8337
Epoch 81/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.400
2 - accuracy: 0.8338
Epoch 82/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.400
1 - accuracy: 0.8347
Epoch 83/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.400
2 - accuracy: 0.8345
Epoch 84/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
9 - accuracy: 0.8340
Epoch 85/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.400
0 - accuracy: 0.8338
Epoch 86/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.400
4 - accuracy: 0.8348
Epoch 87/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.400
0 - accuracy: 0.8330
Epoch 88/500
```

```
6030/6030 [=====] - 1s 181us/sample - loss: 0.400
0 - accuracy: 0.8332
Epoch 89/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.400
0 - accuracy: 0.8340
Epoch 90/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.399
9 - accuracy: 0.8333
Epoch 91/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.400
1 - accuracy: 0.8337
Epoch 92/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.399
9 - accuracy: 0.8333
Epoch 93/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
9 - accuracy: 0.8345
Epoch 94/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.400
1 - accuracy: 0.8332
Epoch 95/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.399
8 - accuracy: 0.8327
Epoch 96/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.400
0 - accuracy: 0.8325
Epoch 97/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.400
2 - accuracy: 0.8348
Epoch 98/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.400
0 - accuracy: 0.8335
Epoch 99/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.399
7 - accuracy: 0.8337
Epoch 100/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.399
8 - accuracy: 0.8340
Epoch 101/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.399
8 - accuracy: 0.8340
Epoch 102/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.399
7 - accuracy: 0.8343
Epoch 103/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.399
9 - accuracy: 0.8335
Epoch 104/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.399
6 - accuracy: 0.8343
Epoch 105/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
6 - accuracy: 0.8345
Epoch 106/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.399
8 - accuracy: 0.8333
Epoch 107/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
7 - accuracy: 0.8342
Epoch 108/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.399
```



```
4 - accuracy: 0.8337
Epoch 109/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.400
0 - accuracy: 0.8330
Epoch 110/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.400
2 - accuracy: 0.8325
Epoch 111/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.399
6 - accuracy: 0.8342
Epoch 112/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.399
6 - accuracy: 0.8330
Epoch 113/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.399
6 - accuracy: 0.8332
Epoch 114/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
3 - accuracy: 0.8333
Epoch 115/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.400
0 - accuracy: 0.8317
Epoch 116/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
5 - accuracy: 0.8340
Epoch 117/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.400
0 - accuracy: 0.8333
Epoch 118/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.399
9 - accuracy: 0.8332
Epoch 119/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.400
2 - accuracy: 0.8328
Epoch 120/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
7 - accuracy: 0.8338
Epoch 121/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
5 - accuracy: 0.8342
Epoch 122/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
5 - accuracy: 0.8350
Epoch 123/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.399
7 - accuracy: 0.8340
Epoch 124/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.399
4 - accuracy: 0.8337
Epoch 125/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
4 - accuracy: 0.8348
Epoch 126/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.399
4 - accuracy: 0.8332
Epoch 127/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.399
3 - accuracy: 0.8333
Epoch 128/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
6 - accuracy: 0.8343
```

Epoch 129/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.399  
6 - accuracy: 0.8345  
Epoch 130/500  
6030/6030 [=====] - ETA: 0s - loss: 0.3997 - accuracy: 0.83 - 1s 171us/sample - loss: 0.3993 - accuracy: 0.8345  
Epoch 131/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.399  
6 - accuracy: 0.8335  
Epoch 132/500  
6030/6030 [=====] - 1s 217us/sample - loss: 0.399  
5 - accuracy: 0.8357  
Epoch 133/500  
6030/6030 [=====] - 1s 227us/sample - loss: 0.399  
5 - accuracy: 0.8338  
Epoch 134/500  
6030/6030 [=====] - 2s 257us/sample - loss: 0.399  
3 - accuracy: 0.8350  
Epoch 135/500  
6030/6030 [=====] - 1s 231us/sample - loss: 0.399  
5 - accuracy: 0.8347  
Epoch 136/500  
6030/6030 [=====] - 1s 230us/sample - loss: 0.399  
4 - accuracy: 0.8340  
Epoch 137/500  
6030/6030 [=====] - 1s 233us/sample - loss: 0.399  
3 - accuracy: 0.8340  
Epoch 138/500  
6030/6030 [=====] - 1s 222us/sample - loss: 0.399  
2 - accuracy: 0.8337  
Epoch 139/500  
6030/6030 [=====] - 1s 238us/sample - loss: 0.399  
4 - accuracy: 0.8332  
Epoch 140/500  
6030/6030 [=====] - 1s 236us/sample - loss: 0.399  
5 - accuracy: 0.8325  
Epoch 141/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.399  
5 - accuracy: 0.8353  
Epoch 142/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.399  
5 - accuracy: 0.8332  
Epoch 143/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.399  
8 - accuracy: 0.8343  
Epoch 144/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.399  
2 - accuracy: 0.8342  
Epoch 145/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.399  
5 - accuracy: 0.8342 - loss: 0.392  
Epoch 146/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.399  
3 - accuracy: 0.8347  
Epoch 147/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.399  
0 - accuracy: 0.8325  
Epoch 148/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.399  
2 - accuracy: 0.8332  
Epoch 149/500

```
6030/6030 [=====] - 1s 194us/sample - loss: 0.399
4 - accuracy: 0.8335
Epoch 150/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.399
4 - accuracy: 0.8350
Epoch 151/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
2 - accuracy: 0.8338
Epoch 152/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.399
2 - accuracy: 0.8332
Epoch 153/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.399
1 - accuracy: 0.8343
Epoch 154/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.399
3 - accuracy: 0.8338
Epoch 155/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.398
7 - accuracy: 0.8328
Epoch 156/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
3 - accuracy: 0.8343
Epoch 157/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.399
0 - accuracy: 0.8338
Epoch 158/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.399
3 - accuracy: 0.8335
Epoch 159/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.399
1 - accuracy: 0.8348
Epoch 160/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.399
5 - accuracy: 0.8337
Epoch 161/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.399
3 - accuracy: 0.8350
Epoch 162/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.399
2 - accuracy: 0.8342
Epoch 163/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
4 - accuracy: 0.8328
Epoch 164/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
2 - accuracy: 0.8342
Epoch 165/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.399
2 - accuracy: 0.8337
Epoch 166/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
0 - accuracy: 0.8338
Epoch 167/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
1 - accuracy: 0.8342
Epoch 168/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.399
3 - accuracy: 0.8345
Epoch 169/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.399
```

```
3 - accuracy: 0.8338
Epoch 170/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.399
2 - accuracy: 0.8335
Epoch 171/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.399
1 - accuracy: 0.8333
Epoch 172/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.399
0 - accuracy: 0.8353
Epoch 173/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.399
2 - accuracy: 0.8333
Epoch 174/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.399
5 - accuracy: 0.8340
Epoch 175/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.398
9 - accuracy: 0.8327
Epoch 176/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.399
3 - accuracy: 0.8340
Epoch 177/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.399
0 - accuracy: 0.8335
Epoch 178/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
4 - accuracy: 0.8328
Epoch 179/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.399
2 - accuracy: 0.8330
Epoch 180/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.399
3 - accuracy: 0.8323
Epoch 181/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.399
2 - accuracy: 0.8340
Epoch 182/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.399
1 - accuracy: 0.8345
Epoch 183/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.399
3 - accuracy: 0.8340
Epoch 184/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.399
5 - accuracy: 0.8337
Epoch 185/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
0 - accuracy: 0.8330
Epoch 186/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.399
3 - accuracy: 0.8330 -
Epoch 187/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
2 - accuracy: 0.8330
Epoch 188/500
6030/6030 [=====] - 1s 166us/sample - loss: 0.399
1 - accuracy: 0.8337
Epoch 189/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.398
9 - accuracy: 0.8338
```

Epoch 190/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.398  
8 - accuracy: 0.8340  
Epoch 191/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.399  
8 - accuracy: 0.8330  
Epoch 192/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.399  
4 - accuracy: 0.8342  
Epoch 193/500  
6030/6030 [=====] - 1s 168us/sample - loss: 0.398  
9 - accuracy: 0.8337  
Epoch 194/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.399  
5 - accuracy: 0.8343  
Epoch 195/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.398  
7 - accuracy: 0.8323  
Epoch 196/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.399  
3 - accuracy: 0.8342  
Epoch 197/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.398  
9 - accuracy: 0.8338  
Epoch 198/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.399  
2 - accuracy: 0.8342  
Epoch 199/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.399  
0 - accuracy: 0.8337  
Epoch 200/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.399  
5 - accuracy: 0.8340  
Epoch 201/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.399  
1 - accuracy: 0.8332  
Epoch 202/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.399  
1 - accuracy: 0.8340  
Epoch 203/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.399  
1 - accuracy: 0.8330  
Epoch 204/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.399  
0 - accuracy: 0.8330  
Epoch 205/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.399  
3 - accuracy: 0.8345  
Epoch 206/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.399  
0 - accuracy: 0.8330  
Epoch 207/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.399  
2 - accuracy: 0.8332  
Epoch 208/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.399  
2 - accuracy: 0.8347  
Epoch 209/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.399  
1 - accuracy: 0.8348  
Epoch 210/500

```
6030/6030 [=====] - 1s 174us/sample - loss: 0.398
9 - accuracy: 0.8340
Epoch 211/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.399
3 - accuracy: 0.8342
Epoch 212/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.399
3 - accuracy: 0.8332
Epoch 213/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.399
0 - accuracy: 0.8338
Epoch 214/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
3 - accuracy: 0.8347
Epoch 215/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
4 - accuracy: 0.8343
Epoch 216/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.399
0 - accuracy: 0.8340
Epoch 217/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.399
2 - accuracy: 0.8347
Epoch 218/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.399
0 - accuracy: 0.8340
Epoch 219/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
4 - accuracy: 0.8342
Epoch 220/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.399
2 - accuracy: 0.8328
Epoch 221/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
2 - accuracy: 0.8327
Epoch 222/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.399
3 - accuracy: 0.8333
Epoch 223/500
6030/6030 [=====] - 2s 265us/sample - loss: 0.399
0 - accuracy: 0.8350
Epoch 224/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.398
8 - accuracy: 0.8338
Epoch 225/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.399
4 - accuracy: 0.8342
Epoch 226/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.399
1 - accuracy: 0.8340
Epoch 227/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.398
9 - accuracy: 0.8328
Epoch 228/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.398
7 - accuracy: 0.8350
Epoch 229/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.399
1 - accuracy: 0.8350
Epoch 230/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
```

```
2 - accuracy: 0.8338
Epoch 231/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.399
0 - accuracy: 0.8348
Epoch 232/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.399
3 - accuracy: 0.8327
Epoch 233/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.398
8 - accuracy: 0.8332
Epoch 234/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.399
4 - accuracy: 0.8345
Epoch 235/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.399
1 - accuracy: 0.8337
Epoch 236/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
8 - accuracy: 0.8342
Epoch 237/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.399
2 - accuracy: 0.8355
Epoch 238/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.399
0 - accuracy: 0.8343
Epoch 239/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.398
8 - accuracy: 0.8335
Epoch 240/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.399
2 - accuracy: 0.8347
Epoch 241/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.399
0 - accuracy: 0.8340
Epoch 242/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
1 - accuracy: 0.8343
Epoch 243/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.398
8 - accuracy: 0.8327
Epoch 244/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.398
9 - accuracy: 0.8343
Epoch 245/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.399
4 - accuracy: 0.8345
Epoch 246/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.399
0 - accuracy: 0.8340
Epoch 247/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.399
2 - accuracy: 0.8332
Epoch 248/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.399
1 - accuracy: 0.8335
Epoch 249/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.398
7 - accuracy: 0.8343
Epoch 250/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.399
1 - accuracy: 0.8340
```

Epoch 251/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.399  
1 - accuracy: 0.8347  
Epoch 252/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.399  
0 - accuracy: 0.8340  
Epoch 253/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.398  
8 - accuracy: 0.8345  
Epoch 254/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.399  
2 - accuracy: 0.8330  
Epoch 255/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.399  
1 - accuracy: 0.8335  
Epoch 256/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.399  
1 - accuracy: 0.8338  
Epoch 257/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.398  
8 - accuracy: 0.8340  
Epoch 258/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.399  
1 - accuracy: 0.8343  
Epoch 259/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.398  
8 - accuracy: 0.8348  
Epoch 260/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.399  
2 - accuracy: 0.8345 - loss: 0.3966 - accura  
Epoch 261/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.398  
9 - accuracy: 0.8350  
Epoch 262/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.399  
1 - accuracy: 0.8347  
Epoch 263/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.399  
2 - accuracy: 0.8335  
Epoch 264/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.398  
9 - accuracy: 0.8345  
Epoch 265/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.399  
0 - accuracy: 0.8340  
Epoch 266/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.398  
9 - accuracy: 0.8333  
Epoch 267/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.399  
0 - accuracy: 0.8317  
Epoch 268/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.399  
1 - accuracy: 0.8330  
Epoch 269/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.399  
0 - accuracy: 0.8330  
Epoch 270/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.399  
1 - accuracy: 0.8342  
Epoch 271/500



```
6030/6030 [=====] - 1s 168us/sample - loss: 0.398
9 - accuracy: 0.8343 - loss: 0.3984 - accuracy: 0.83
Epoch 272/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.399
1 - accuracy: 0.8340
Epoch 273/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
1 - accuracy: 0.8328
Epoch 274/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
6 - accuracy: 0.8332
Epoch 275/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.398
7 - accuracy: 0.8330
Epoch 276/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.399
0 - accuracy: 0.8333
Epoch 277/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.399
0 - accuracy: 0.8343
Epoch 278/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.398
9 - accuracy: 0.8322
Epoch 279/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.398
6 - accuracy: 0.8342
Epoch 280/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.399
0 - accuracy: 0.8340
Epoch 281/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
2 - accuracy: 0.8333
Epoch 282/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.398
9 - accuracy: 0.8332
Epoch 283/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.399
0 - accuracy: 0.8327
Epoch 284/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.398
9 - accuracy: 0.8328
Epoch 285/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
7 - accuracy: 0.8333
Epoch 286/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.399
0 - accuracy: 0.8325
Epoch 287/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
9 - accuracy: 0.8330
Epoch 288/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
9 - accuracy: 0.8327
Epoch 289/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
9 - accuracy: 0.8332
Epoch 290/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
8 - accuracy: 0.8345
Epoch 291/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
```

```
8 - accuracy: 0.8338
Epoch 292/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.398
8 - accuracy: 0.8327
Epoch 293/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
1 - accuracy: 0.8338
Epoch 294/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
8 - accuracy: 0.8348
Epoch 295/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.399
1 - accuracy: 0.8350
Epoch 296/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.398
6 - accuracy: 0.8338
Epoch 297/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.398
7 - accuracy: 0.8337
Epoch 298/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.399
0 - accuracy: 0.8335
Epoch 299/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.398
8 - accuracy: 0.8330
Epoch 300/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
9 - accuracy: 0.8337
Epoch 301/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.398
8 - accuracy: 0.8340
Epoch 302/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.398
9 - accuracy: 0.8355
Epoch 303/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.398
9 - accuracy: 0.8337
Epoch 304/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.398
7 - accuracy: 0.8353
Epoch 305/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.398
9 - accuracy: 0.8343
Epoch 306/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.398
9 - accuracy: 0.8333
Epoch 307/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.399
0 - accuracy: 0.8335
Epoch 308/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
0 - accuracy: 0.8343
Epoch 309/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.398
8 - accuracy: 0.8333
Epoch 310/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.399
2 - accuracy: 0.8337
Epoch 311/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.398
8 - accuracy: 0.8340
```

Epoch 312/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.399  
1 - accuracy: 0.8335  
Epoch 313/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.399  
0 - accuracy: 0.8327  
Epoch 314/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.398  
8 - accuracy: 0.8345  
Epoch 315/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.398  
7 - accuracy: 0.8347  
Epoch 316/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.398  
7 - accuracy: 0.8340  
Epoch 317/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
8 - accuracy: 0.8343  
Epoch 318/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.399  
0 - accuracy: 0.8335  
Epoch 319/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.398  
6 - accuracy: 0.8342  
Epoch 320/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.398  
8 - accuracy: 0.8342  
Epoch 321/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.398  
7 - accuracy: 0.8337  
Epoch 322/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.398  
8 - accuracy: 0.8337  
Epoch 323/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.398  
6 - accuracy: 0.8347  
Epoch 324/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.399  
1 - accuracy: 0.8338  
Epoch 325/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.398  
7 - accuracy: 0.8347  
Epoch 326/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.398  
6 - accuracy: 0.8342  
Epoch 327/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.398  
9 - accuracy: 0.8347  
Epoch 328/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.398  
6 - accuracy: 0.8340  
Epoch 329/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.398  
7 - accuracy: 0.8338  
Epoch 330/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.398  
8 - accuracy: 0.8330  
Epoch 331/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.398  
8 - accuracy: 0.8332  
Epoch 332/500

```
6030/6030 [=====] - 1s 174us/sample - loss: 0.398
9 - accuracy: 0.8335
Epoch 333/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.398
8 - accuracy: 0.8360
Epoch 334/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.398
7 - accuracy: 0.8347
Epoch 335/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.398
7 - accuracy: 0.8332
Epoch 336/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.398
7 - accuracy: 0.8352
Epoch 337/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.398
8 - accuracy: 0.8330
Epoch 338/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.398
7 - accuracy: 0.8343
Epoch 339/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.398
5 - accuracy: 0.8357
Epoch 340/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.398
7 - accuracy: 0.8332
Epoch 341/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.398
7 - accuracy: 0.8353
Epoch 342/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.398
7 - accuracy: 0.8333
Epoch 343/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.398
6 - accuracy: 0.8338
Epoch 344/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.398
7 - accuracy: 0.8330
Epoch 345/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
7 - accuracy: 0.8338
Epoch 346/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.398
6 - accuracy: 0.8342
Epoch 347/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.399
0 - accuracy: 0.8348
Epoch 348/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.398
7 - accuracy: 0.8333
Epoch 349/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.398
9 - accuracy: 0.8332
Epoch 350/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
6 - accuracy: 0.8325
Epoch 351/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.398
7 - accuracy: 0.8342
Epoch 352/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.399
```

```
0 - accuracy: 0.8342
Epoch 353/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.398
6 - accuracy: 0.8340
Epoch 354/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.398
5 - accuracy: 0.8342
Epoch 355/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.398
6 - accuracy: 0.8345
Epoch 356/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.398
2 - accuracy: 0.8335
Epoch 357/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.399
2 - accuracy: 0.8340
Epoch 358/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
4 - accuracy: 0.8335
Epoch 359/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.398
7 - accuracy: 0.8338
Epoch 360/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
7 - accuracy: 0.8340 - loss: 0.3986 - ac
Epoch 361/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.398
6 - accuracy: 0.8347
Epoch 362/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
7 - accuracy: 0.8338
Epoch 363/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.398
9 - accuracy: 0.8332
Epoch 364/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.398
6 - accuracy: 0.8333
Epoch 365/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.398
7 - accuracy: 0.8335
Epoch 366/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.398
9 - accuracy: 0.8338
Epoch 367/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.398
9 - accuracy: 0.8325
Epoch 368/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.398
7 - accuracy: 0.8333
Epoch 369/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
7 - accuracy: 0.8342
Epoch 370/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
6 - accuracy: 0.8343
Epoch 371/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
8 - accuracy: 0.8330
Epoch 372/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
8 - accuracy: 0.8345
```

Epoch 373/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.398  
9 - accuracy: 0.8338  
Epoch 374/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.398  
7 - accuracy: 0.8343  
Epoch 375/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.398  
8 - accuracy: 0.8335  
Epoch 376/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.398  
5 - accuracy: 0.8323  
Epoch 377/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.398  
6 - accuracy: 0.8327  
Epoch 378/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.398  
6 - accuracy: 0.8353  
Epoch 379/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.398  
6 - accuracy: 0.8342  
Epoch 380/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
6 - accuracy: 0.8345  
Epoch 381/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
6 - accuracy: 0.8337  
Epoch 382/500  
6030/6030 [=====] - 1s 168us/sample - loss: 0.398  
6 - accuracy: 0.8352  
Epoch 383/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.398  
5 - accuracy: 0.8342  
Epoch 384/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.399  
1 - accuracy: 0.8338  
Epoch 385/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.398  
7 - accuracy: 0.8342  
Epoch 386/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.398  
8 - accuracy: 0.8332  
Epoch 387/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.398  
3 - accuracy: 0.8333  
Epoch 388/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.398  
8 - accuracy: 0.8343  
Epoch 389/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.398  
8 - accuracy: 0.8343  
Epoch 390/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
4 - accuracy: 0.8340  
Epoch 391/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.398  
6 - accuracy: 0.8348  
Epoch 392/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.398  
4 - accuracy: 0.8348  
Epoch 393/500

```
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
7 - accuracy: 0.8350
Epoch 394/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
6 - accuracy: 0.8335
Epoch 395/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
9 - accuracy: 0.8335
Epoch 396/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.398
5 - accuracy: 0.8337
Epoch 397/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.399
0 - accuracy: 0.8348
Epoch 398/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
4 - accuracy: 0.8340
Epoch 399/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
5 - accuracy: 0.8335
Epoch 400/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
5 - accuracy: 0.8347
Epoch 401/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
6 - accuracy: 0.8333
Epoch 402/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.398
4 - accuracy: 0.8333
Epoch 403/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
6 - accuracy: 0.8330
Epoch 404/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
8 - accuracy: 0.8347
Epoch 405/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
9 - accuracy: 0.8348
Epoch 406/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.398
8 - accuracy: 0.8343
Epoch 407/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
7 - accuracy: 0.8330
Epoch 408/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
4 - accuracy: 0.8345
Epoch 409/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
5 - accuracy: 0.8348
Epoch 410/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
4 - accuracy: 0.8332
Epoch 411/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
6 - accuracy: 0.8342
Epoch 412/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.398
6 - accuracy: 0.8348
Epoch 413/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.398
```

```
6 - accuracy: 0.8338
Epoch 414/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
4 - accuracy: 0.8352
Epoch 415/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.398
6 - accuracy: 0.8338
Epoch 416/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
7 - accuracy: 0.8343
Epoch 417/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.398
5 - accuracy: 0.8330
Epoch 418/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
6 - accuracy: 0.8348
Epoch 419/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.398
5 - accuracy: 0.8340
Epoch 420/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.398
8 - accuracy: 0.8338
Epoch 421/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.398
7 - accuracy: 0.8340
Epoch 422/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.398
6 - accuracy: 0.8332
Epoch 423/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.398
5 - accuracy: 0.8337
Epoch 424/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.398
6 - accuracy: 0.8340
Epoch 425/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.398
6 - accuracy: 0.8337
Epoch 426/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.398
5 - accuracy: 0.8340
Epoch 427/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.398
2 - accuracy: 0.8347
Epoch 428/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.398
2 - accuracy: 0.8340
Epoch 429/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
4 - accuracy: 0.8350
Epoch 430/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
8 - accuracy: 0.8343
Epoch 431/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
6 - accuracy: 0.8337
Epoch 432/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.398
3 - accuracy: 0.8342
Epoch 433/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
6 - accuracy: 0.8342
```



Epoch 434/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.398  
0 - accuracy: 0.8338  
Epoch 435/500  
6030/6030 [=====] - 1s 237us/sample - loss: 0.398  
9 - accuracy: 0.8345  
Epoch 436/500  
6030/6030 [=====] - 2s 289us/sample - loss: 0.398  
4 - accuracy: 0.8340 - loss: 0.3980 - accuracy: 0.  
Epoch 437/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.398  
9 - accuracy: 0.8337  
Epoch 438/500  
6030/6030 [=====] - 1s 230us/sample - loss: 0.398  
6 - accuracy: 0.8333  
Epoch 439/500  
6030/6030 [=====] - 2s 274us/sample - loss: 0.398  
8 - accuracy: 0.8348  
Epoch 440/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.398  
6 - accuracy: 0.8343  
Epoch 441/500  
6030/6030 [=====] - 1s 210us/sample - loss: 0.398  
4 - accuracy: 0.8337  
Epoch 442/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.398  
6 - accuracy: 0.8323  
Epoch 443/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.398  
4 - accuracy: 0.8338  
Epoch 444/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.398  
6 - accuracy: 0.8337  
Epoch 445/500  
6030/6030 [=====] - 1s 222us/sample - loss: 0.398  
5 - accuracy: 0.8337  
Epoch 446/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.398  
7 - accuracy: 0.8342  
Epoch 447/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.398  
2 - accuracy: 0.8335  
Epoch 448/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.399  
0 - accuracy: 0.8337  
Epoch 449/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.398  
6 - accuracy: 0.8342  
Epoch 450/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.398  
4 - accuracy: 0.8345  
Epoch 451/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.398  
6 - accuracy: 0.8338  
Epoch 452/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.398  
5 - accuracy: 0.8335 - loss: 0.4046 - accuracy  
Epoch 453/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
7 - accuracy: 0.8340  
Epoch 454/500

```
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
3 - accuracy: 0.8342
Epoch 455/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
7 - accuracy: 0.8332
Epoch 456/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.398
7 - accuracy: 0.8347
Epoch 457/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.398
7 - accuracy: 0.8342
Epoch 458/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.398
5 - accuracy: 0.8343
Epoch 459/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.398
4 - accuracy: 0.8345
Epoch 460/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.398
7 - accuracy: 0.8357
Epoch 461/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.398
5 - accuracy: 0.8340
Epoch 462/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.398
7 - accuracy: 0.8338
Epoch 463/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.398
7 - accuracy: 0.8338
Epoch 464/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.398
5 - accuracy: 0.8343
Epoch 465/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.398
5 - accuracy: 0.8335
Epoch 466/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.398
6 - accuracy: 0.8328
Epoch 467/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.398
1 - accuracy: 0.8352
Epoch 468/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.398
8 - accuracy: 0.8337
Epoch 469/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.398
6 - accuracy: 0.8335
Epoch 470/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.398
7 - accuracy: 0.8347
Epoch 471/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.398
3 - accuracy: 0.8357
Epoch 472/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.398
5 - accuracy: 0.8347
Epoch 473/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.398
5 - accuracy: 0.8345
Epoch 474/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.398
```

```
5 - accuracy: 0.8352
Epoch 475/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.398
5 - accuracy: 0.8340
Epoch 476/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
8 - accuracy: 0.8330
Epoch 477/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
6 - accuracy: 0.8330
Epoch 478/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.398
6 - accuracy: 0.8342
Epoch 479/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.398
3 - accuracy: 0.8337
Epoch 480/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.398
5 - accuracy: 0.8333
Epoch 481/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.398
4 - accuracy: 0.8348
Epoch 482/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.398
5 - accuracy: 0.8343
Epoch 483/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.398
6 - accuracy: 0.8345
Epoch 484/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
3 - accuracy: 0.8342
Epoch 485/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
7 - accuracy: 0.8333
Epoch 486/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.398
6 - accuracy: 0.8340
Epoch 487/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.398
5 - accuracy: 0.8343
Epoch 488/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.398
8 - accuracy: 0.8345
Epoch 489/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.398
7 - accuracy: 0.8343
Epoch 490/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.398
4 - accuracy: 0.8338
Epoch 491/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
4 - accuracy: 0.8347
Epoch 492/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.398
4 - accuracy: 0.8347
Epoch 493/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.398
7 - accuracy: 0.8330
Epoch 494/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.398
3 - accuracy: 0.8345
```

Epoch 495/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.398  
7 - accuracy: 0.8347  
Epoch 496/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.398  
5 - accuracy: 0.8353  
Epoch 497/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.398  
5 - accuracy: 0.8337  
Epoch 498/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.398  
4 - accuracy: 0.8347  
Epoch 499/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.398  
5 - accuracy: 0.8338  
Epoch 500/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.398  
5 - accuracy: 0.8335  
Train on 6030 samples  
Epoch 1/500  
6030/6030 [=====] - 2s 263us/sample - loss: 0.596  
6 - accuracy: 0.7887  
Epoch 2/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.446  
8 - accuracy: 0.7910  
Epoch 3/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.439  
2 - accuracy: 0.7910  
Epoch 4/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.436  
7 - accuracy: 0.7910  
Epoch 5/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.434  
9 - accuracy: 0.7910  
Epoch 6/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.433  
6 - accuracy: 0.7910  
Epoch 7/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.431  
8 - accuracy: 0.7910  
Epoch 8/500  
6030/6030 [=====] - 1s 207us/sample - loss: 0.430  
1 - accuracy: 0.7910  
Epoch 9/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.427  
8 - accuracy: 0.7910  
Epoch 10/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.425  
6 - accuracy: 0.8146  
Epoch 11/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.423  
9 - accuracy: 0.8194  
Epoch 12/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.422  
6 - accuracy: 0.8207  
Epoch 13/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.421  
4 - accuracy: 0.8234  
Epoch 14/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.420  
3 - accuracy: 0.8231

```
Epoch 15/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.419
4 - accuracy: 0.8250 - los
Epoch 16/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.418
7 - accuracy: 0.8250
Epoch 17/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.417
9 - accuracy: 0.8255
Epoch 18/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.417
6 - accuracy: 0.8277
Epoch 19/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.416
7 - accuracy: 0.8285
Epoch 20/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.416
1 - accuracy: 0.8274
Epoch 21/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.415
5 - accuracy: 0.8279
Epoch 22/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.415
0 - accuracy: 0.8274
Epoch 23/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.414
7 - accuracy: 0.8287
Epoch 24/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.414
4 - accuracy: 0.8295
Epoch 25/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.413
9 - accuracy: 0.8297
Epoch 26/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.413
3 - accuracy: 0.8300
Epoch 27/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.413
3 - accuracy: 0.8297
Epoch 28/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.412
9 - accuracy: 0.8308
Epoch 29/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.412
3 - accuracy: 0.8312
Epoch 30/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.412
2 - accuracy: 0.8305
Epoch 31/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.411
6 - accuracy: 0.8294
Epoch 32/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.411
8 - accuracy: 0.8295
Epoch 33/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.411
0 - accuracy: 0.8292
Epoch 34/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.411
0 - accuracy: 0.8313
Epoch 35/500
```

```
6030/6030 [=====] - 1s 172us/sample - loss: 0.410
4 - accuracy: 0.8312
Epoch 36/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.410
7 - accuracy: 0.8307
Epoch 37/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.409
9 - accuracy: 0.8302
Epoch 38/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.409
8 - accuracy: 0.8300
Epoch 39/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.409
4 - accuracy: 0.8318
Epoch 40/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.409
2 - accuracy: 0.8315
Epoch 41/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.408
8 - accuracy: 0.8305
Epoch 42/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.408
4 - accuracy: 0.8295
Epoch 43/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.408
1 - accuracy: 0.8325
Epoch 44/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.407
7 - accuracy: 0.8308
Epoch 45/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.407
4 - accuracy: 0.8303
Epoch 46/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.407
5 - accuracy: 0.8310
Epoch 47/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.406
7 - accuracy: 0.8320
Epoch 48/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.406
5 - accuracy: 0.8320
Epoch 49/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.406
3 - accuracy: 0.8303
Epoch 50/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.405
8 - accuracy: 0.8312
Epoch 51/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.405
3 - accuracy: 0.8303
Epoch 52/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.405
3 - accuracy: 0.8322
Epoch 53/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.404
9 - accuracy: 0.8307
Epoch 54/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.405
0 - accuracy: 0.8307
Epoch 55/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.404
```

```
8 - accuracy: 0.8325
Epoch 56/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.404
6 - accuracy: 0.8299
Epoch 57/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.404
0 - accuracy: 0.8312
Epoch 58/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.403
6 - accuracy: 0.8307
Epoch 59/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.403
9 - accuracy: 0.8318
Epoch 60/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.403
5 - accuracy: 0.8308
Epoch 61/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.403
5 - accuracy: 0.8310
Epoch 62/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.402
7 - accuracy: 0.8312
Epoch 63/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.403
0 - accuracy: 0.8328
Epoch 64/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.402
4 - accuracy: 0.8302
Epoch 65/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.402
4 - accuracy: 0.8315
Epoch 66/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.402
3 - accuracy: 0.8327
Epoch 67/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.402
4 - accuracy: 0.8312
Epoch 68/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.401
9 - accuracy: 0.8317
Epoch 69/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.401
9 - accuracy: 0.8320
Epoch 70/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.402
1 - accuracy: 0.8322
Epoch 71/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.402
0 - accuracy: 0.8338
Epoch 72/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.401
8 - accuracy: 0.8328
Epoch 73/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.401
6 - accuracy: 0.8313
Epoch 74/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.401
6 - accuracy: 0.8332
Epoch 75/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.401
1 - accuracy: 0.8327
```

Epoch 76/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.401  
2 - accuracy: 0.8312

Epoch 77/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.401  
5 - accuracy: 0.8327

Epoch 78/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.401  
1 - accuracy: 0.8318

Epoch 79/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.401  
2 - accuracy: 0.8328

Epoch 80/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.401  
1 - accuracy: 0.8333

Epoch 81/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.400  
6 - accuracy: 0.8327

Epoch 82/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.400  
7 - accuracy: 0.8335

Epoch 83/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.401  
0 - accuracy: 0.8330

Epoch 84/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.401  
0 - accuracy: 0.8318

Epoch 85/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.400  
6 - accuracy: 0.8345

Epoch 86/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.400  
8 - accuracy: 0.8337

Epoch 87/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.400  
5 - accuracy: 0.8325

Epoch 88/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.400  
8 - accuracy: 0.8320

Epoch 89/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.400  
7 - accuracy: 0.8328

Epoch 90/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.400  
6 - accuracy: 0.8322

Epoch 91/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.400  
7 - accuracy: 0.8337

Epoch 92/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.400  
8 - accuracy: 0.8327

Epoch 93/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.400  
4 - accuracy: 0.8318

Epoch 94/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.400  
4 - accuracy: 0.8327

Epoch 95/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.399  
7 - accuracy: 0.8330

Epoch 96/500



```
6030/6030 [=====] - 1s 182us/sample - loss: 0.400
3 - accuracy: 0.8322
Epoch 97/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.400
4 - accuracy: 0.8332
Epoch 98/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.400
6 - accuracy: 0.8330
Epoch 99/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.400
2 - accuracy: 0.8332
Epoch 100/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.400
1 - accuracy: 0.8342
Epoch 101/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.400
1 - accuracy: 0.8327
Epoch 102/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.400
1 - accuracy: 0.8325
Epoch 103/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.400
1 - accuracy: 0.8332
Epoch 104/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
5 - accuracy: 0.8337
Epoch 105/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.400
2 - accuracy: 0.8330
Epoch 106/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.399
8 - accuracy: 0.8338
Epoch 107/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.400
1 - accuracy: 0.8325
Epoch 108/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.399
9 - accuracy: 0.8337
Epoch 109/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
7 - accuracy: 0.8340
Epoch 110/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
5 - accuracy: 0.8340
Epoch 111/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
5 - accuracy: 0.8332
Epoch 112/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
9 - accuracy: 0.8347
Epoch 113/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
6 - accuracy: 0.8333
Epoch 114/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
6 - accuracy: 0.8338
Epoch 115/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
6 - accuracy: 0.8338
Epoch 116/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
```

```
3 - accuracy: 0.8335
Epoch 117/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
4 - accuracy: 0.8340
Epoch 118/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
3 - accuracy: 0.8343
Epoch 119/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
5 - accuracy: 0.8343
Epoch 120/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
8 - accuracy: 0.8355
Epoch 121/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
4 - accuracy: 0.8335
Epoch 122/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
4 - accuracy: 0.8355
Epoch 123/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
1 - accuracy: 0.8340
Epoch 124/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
0 - accuracy: 0.8338
Epoch 125/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
2 - accuracy: 0.8338
Epoch 126/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
8 - accuracy: 0.8338
Epoch 127/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.399
2 - accuracy: 0.8353
Epoch 128/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.398
7 - accuracy: 0.8338
Epoch 129/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
1 - accuracy: 0.8352
Epoch 130/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
9 - accuracy: 0.8317
Epoch 131/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.398
8 - accuracy: 0.8330
Epoch 132/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
1 - accuracy: 0.8340
Epoch 133/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
2 - accuracy: 0.8343
Epoch 134/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
8 - accuracy: 0.8362
Epoch 135/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
8 - accuracy: 0.8338
Epoch 136/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
8 - accuracy: 0.8348
```

Epoch 137/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.398  
6 - accuracy: 0.8342  
Epoch 138/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.398  
7 - accuracy: 0.8348  
Epoch 139/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.399  
1 - accuracy: 0.8315  
Epoch 140/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.398  
3 - accuracy: 0.8337  
Epoch 141/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
5 - accuracy: 0.8350  
Epoch 142/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
7 - accuracy: 0.8348  
Epoch 143/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.398  
2 - accuracy: 0.8355  
Epoch 144/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
8 - accuracy: 0.8352  
Epoch 145/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.398  
1 - accuracy: 0.8335  
Epoch 146/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.398  
7 - accuracy: 0.8333  
Epoch 147/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.398  
4 - accuracy: 0.8352  
Epoch 148/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.398  
4 - accuracy: 0.8335  
Epoch 149/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
4 - accuracy: 0.8342  
Epoch 150/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.398  
4 - accuracy: 0.8342  
Epoch 151/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
5 - accuracy: 0.8350  
Epoch 152/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.398  
3 - accuracy: 0.8352  
Epoch 153/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.398  
5 - accuracy: 0.8347  
Epoch 154/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.398  
4 - accuracy: 0.8350  
Epoch 155/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
1 - accuracy: 0.8350  
Epoch 156/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.398  
2 - accuracy: 0.8352  
Epoch 157/500

```
6030/6030 [=====] - 1s 182us/sample - loss: 0.398
3 - accuracy: 0.8342
Epoch 158/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.398
3 - accuracy: 0.8347
Epoch 159/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
0 - accuracy: 0.8345
Epoch 160/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
3 - accuracy: 0.8347
Epoch 161/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.397
7 - accuracy: 0.8340
Epoch 162/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
0 - accuracy: 0.8333
Epoch 163/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
1 - accuracy: 0.8350
Epoch 164/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
1 - accuracy: 0.8365
Epoch 165/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
0 - accuracy: 0.8345
Epoch 166/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.397
9 - accuracy: 0.8343
Epoch 167/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.398
1 - accuracy: 0.8347
Epoch 168/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.397
9 - accuracy: 0.8357
Epoch 169/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
0 - accuracy: 0.8338
Epoch 170/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
1 - accuracy: 0.8348
Epoch 171/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.397
9 - accuracy: 0.8348
Epoch 172/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.397
9 - accuracy: 0.8350
Epoch 173/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.397
8 - accuracy: 0.8357
Epoch 174/500
6030/6030 [=====] - ETA: 0s - loss: 0.3987 - accuracy: 0.83 - 1s 170us/sample - loss: 0.3979 - accuracy: 0.8330
Epoch 175/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.397
5 - accuracy: 0.8342
Epoch 176/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.398
0 - accuracy: 0.8363
Epoch 177/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.397
```

```
7 - accuracy: 0.8338
Epoch 178/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.397
8 - accuracy: 0.8343
Epoch 179/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.397
6 - accuracy: 0.8357
Epoch 180/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
0 - accuracy: 0.8353
Epoch 181/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.397
8 - accuracy: 0.8358
Epoch 182/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.397
7 - accuracy: 0.8348
Epoch 183/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
2 - accuracy: 0.8338
Epoch 184/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.397
4 - accuracy: 0.8352
Epoch 185/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.397
4 - accuracy: 0.8342
Epoch 186/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
0 - accuracy: 0.8345
Epoch 187/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.397
3 - accuracy: 0.8348
Epoch 188/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.397
8 - accuracy: 0.8343
Epoch 189/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
0 - accuracy: 0.8352
Epoch 190/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.397
4 - accuracy: 0.8347
Epoch 191/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.397
5 - accuracy: 0.8355
Epoch 192/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.397
9 - accuracy: 0.8342
Epoch 193/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.397
4 - accuracy: 0.8345
Epoch 194/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.397
8 - accuracy: 0.8358
Epoch 195/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.397
7 - accuracy: 0.8342
Epoch 196/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.397
6 - accuracy: 0.8353
Epoch 197/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.397
8 - accuracy: 0.8352
```

Epoch 198/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.398  
2 - accuracy: 0.8345  
Epoch 199/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.397  
7 - accuracy: 0.8365  
Epoch 200/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.397  
7 - accuracy: 0.8353  
Epoch 201/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.397  
3 - accuracy: 0.8355  
Epoch 202/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.397  
3 - accuracy: 0.8348  
Epoch 203/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.397  
1 - accuracy: 0.8342  
Epoch 204/500  
6030/6030 [=====] - 1s 224us/sample - loss: 0.397  
0 - accuracy: 0.8347  
Epoch 205/500  
6030/6030 [=====] - 1s 224us/sample - loss: 0.397  
2 - accuracy: 0.8362  
Epoch 206/500  
6030/6030 [=====] - 1s 228us/sample - loss: 0.396  
8 - accuracy: 0.8345  
Epoch 207/500  
6030/6030 [=====] - 1s 225us/sample - loss: 0.396  
7 - accuracy: 0.8348  
Epoch 208/500  
6030/6030 [=====] - 1s 224us/sample - loss: 0.396  
9 - accuracy: 0.8348  
Epoch 209/500  
6030/6030 [=====] - 1s 226us/sample - loss: 0.396  
9 - accuracy: 0.8358  
Epoch 210/500  
6030/6030 [=====] - 1s 226us/sample - loss: 0.396  
6 - accuracy: 0.8333  
Epoch 211/500  
6030/6030 [=====] - 1s 223us/sample - loss: 0.396  
6 - accuracy: 0.8345  
Epoch 212/500  
6030/6030 [=====] - 1s 227us/sample - loss: 0.396  
8 - accuracy: 0.8355  
Epoch 213/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.396  
4 - accuracy: 0.8348  
Epoch 214/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.396  
0 - accuracy: 0.8337  
Epoch 215/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.396  
0 - accuracy: 0.8352  
Epoch 216/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.395  
8 - accuracy: 0.8345  
Epoch 217/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.395  
9 - accuracy: 0.8358  
Epoch 218/500

```
6030/6030 [=====] - 1s 171us/sample - loss: 0.396
3 - accuracy: 0.8350
Epoch 219/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.395
4 - accuracy: 0.8345
Epoch 220/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.395
5 - accuracy: 0.8357
Epoch 221/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.395
8 - accuracy: 0.8332
Epoch 222/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.395
6 - accuracy: 0.8352
Epoch 223/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.394
9 - accuracy: 0.8357
Epoch 224/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.395
3 - accuracy: 0.8363
Epoch 225/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.395
0 - accuracy: 0.8355
Epoch 226/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.394
8 - accuracy: 0.8353
Epoch 227/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.395
0 - accuracy: 0.8348
Epoch 228/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.395
2 - accuracy: 0.8332
Epoch 229/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.394
7 - accuracy: 0.8357
Epoch 230/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.394
8 - accuracy: 0.8347
Epoch 231/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.394
8 - accuracy: 0.8352
Epoch 232/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.394
3 - accuracy: 0.8358
Epoch 233/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.394
3 - accuracy: 0.8352
Epoch 234/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.394
5 - accuracy: 0.8353
Epoch 235/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.394
5 - accuracy: 0.8357
Epoch 236/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.394
1 - accuracy: 0.8363
Epoch 237/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.394
2 - accuracy: 0.8363
Epoch 238/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.394
```

```
2 - accuracy: 0.8358
Epoch 239/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.393
7 - accuracy: 0.8363
Epoch 240/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.394
0 - accuracy: 0.8371
Epoch 241/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.393
8 - accuracy: 0.8357
Epoch 242/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.393
8 - accuracy: 0.8352
Epoch 243/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.393
2 - accuracy: 0.8357
Epoch 244/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.393
1 - accuracy: 0.8360
Epoch 245/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.393
3 - accuracy: 0.8353
Epoch 246/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.393
3 - accuracy: 0.8375
Epoch 247/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.392
9 - accuracy: 0.8360
Epoch 248/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.392
8 - accuracy: 0.8347
Epoch 249/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.392
6 - accuracy: 0.8365
Epoch 250/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.393
1 - accuracy: 0.8365
Epoch 251/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.392
7 - accuracy: 0.8367
Epoch 252/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.392
3 - accuracy: 0.8373
Epoch 253/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.392
5 - accuracy: 0.8383
Epoch 254/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.392
1 - accuracy: 0.8348
Epoch 255/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.392
4 - accuracy: 0.8378
Epoch 256/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.392
5 - accuracy: 0.8350
Epoch 257/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.392
1 - accuracy: 0.8363
Epoch 258/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.391
6 - accuracy: 0.8373
```



Epoch 259/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.391  
2 - accuracy: 0.8352  
Epoch 260/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.391  
9 - accuracy: 0.8355  
Epoch 261/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.392  
0 - accuracy: 0.8378  
Epoch 262/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.391  
8 - accuracy: 0.8363  
Epoch 263/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.391  
5 - accuracy: 0.8370  
Epoch 264/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.391  
9 - accuracy: 0.8367  
Epoch 265/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.391  
6 - accuracy: 0.8362  
Epoch 266/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.391  
8 - accuracy: 0.8353  
Epoch 267/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.391  
6 - accuracy: 0.8368  
Epoch 268/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.391  
2 - accuracy: 0.8385  
Epoch 269/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.391  
0 - accuracy: 0.8386  
Epoch 270/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.391  
0 - accuracy: 0.8358  
Epoch 271/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.392  
0 - accuracy: 0.8347  
Epoch 272/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.391  
1 - accuracy: 0.8371  
Epoch 273/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.391  
1 - accuracy: 0.8375  
Epoch 274/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.391  
6 - accuracy: 0.8362  
Epoch 275/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.390  
5 - accuracy: 0.8381  
Epoch 276/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.390  
8 - accuracy: 0.8368  
Epoch 277/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.391  
0 - accuracy: 0.8360  
Epoch 278/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.391  
0 - accuracy: 0.8381  
Epoch 279/500

```
6030/6030 [=====] - 1s 173us/sample - loss: 0.391
3 - accuracy: 0.8378
Epoch 280/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.391
6 - accuracy: 0.8378
Epoch 281/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.391
0 - accuracy: 0.8383
Epoch 282/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.390
5 - accuracy: 0.8383
Epoch 283/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.390
8 - accuracy: 0.8373
Epoch 284/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.390
6 - accuracy: 0.8378
Epoch 285/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.390
5 - accuracy: 0.8391
Epoch 286/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.391
2 - accuracy: 0.8358
Epoch 287/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.390
8 - accuracy: 0.8386
Epoch 288/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.390
8 - accuracy: 0.8371
Epoch 289/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.390
7 - accuracy: 0.8368
Epoch 290/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.390
7 - accuracy: 0.8376
Epoch 291/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.390
7 - accuracy: 0.8370
Epoch 292/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.390
4 - accuracy: 0.8385
Epoch 293/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.390
7 - accuracy: 0.8385
Epoch 294/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
8 - accuracy: 0.8370
Epoch 295/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.390
5 - accuracy: 0.8391
Epoch 296/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.390
6 - accuracy: 0.8385
Epoch 297/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.390
4 - accuracy: 0.8375
Epoch 298/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.390
3 - accuracy: 0.8371
Epoch 299/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.390
```

```
5 - accuracy: 0.8381
Epoch 300/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.390
2 - accuracy: 0.8391
Epoch 301/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.390
5 - accuracy: 0.8371
Epoch 302/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.390
9 - accuracy: 0.8393
Epoch 303/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.390
4 - accuracy: 0.8378
Epoch 304/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.390
2 - accuracy: 0.8373
Epoch 305/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.390
6 - accuracy: 0.8376
Epoch 306/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.390
3 - accuracy: 0.8390
Epoch 307/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.390
5 - accuracy: 0.8371
Epoch 308/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.389
9 - accuracy: 0.8368
Epoch 309/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
9 - accuracy: 0.8393
Epoch 310/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.390
3 - accuracy: 0.8385
Epoch 311/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.390
0 - accuracy: 0.8375
Epoch 312/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.390
1 - accuracy: 0.8383
Epoch 313/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.390
3 - accuracy: 0.8395
Epoch 314/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
9 - accuracy: 0.8370
Epoch 315/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.390
2 - accuracy: 0.8376
Epoch 316/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.390
6 - accuracy: 0.8381
Epoch 317/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.389
9 - accuracy: 0.8391
Epoch 318/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.390
6 - accuracy: 0.8367
Epoch 319/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.389
9 - accuracy: 0.8380
```

Epoch 320/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.390  
1 - accuracy: 0.8383  
Epoch 321/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.389  
7 - accuracy: 0.8383  
Epoch 322/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.389  
7 - accuracy: 0.8403  
Epoch 323/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.390  
5 - accuracy: 0.8380  
Epoch 324/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.390  
3 - accuracy: 0.8378  
Epoch 325/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.390  
1 - accuracy: 0.8378  
Epoch 326/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.390  
0 - accuracy: 0.8376  
Epoch 327/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.390  
5 - accuracy: 0.8376  
Epoch 328/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.390  
1 - accuracy: 0.8383  
Epoch 329/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.390  
0 - accuracy: 0.8390  
Epoch 330/500  
6030/6030 [=====] - 1s 217us/sample - loss: 0.389  
8 - accuracy: 0.8362  
Epoch 331/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.390  
2 - accuracy: 0.8383  
Epoch 332/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.390  
6 - accuracy: 0.8355  
Epoch 333/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.390  
1 - accuracy: 0.8376  
Epoch 334/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.389  
7 - accuracy: 0.8365  
Epoch 335/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.390  
0 - accuracy: 0.8380  
Epoch 336/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.389  
3 - accuracy: 0.8371  
Epoch 337/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.390  
0 - accuracy: 0.8365  
Epoch 338/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.389  
3 - accuracy: 0.8375  
Epoch 339/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.390  
3 - accuracy: 0.8367  
Epoch 340/500

```
6030/6030 [=====] - 1s 190us/sample - loss: 0.389
7 - accuracy: 0.8362
Epoch 341/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.389
9 - accuracy: 0.8373
Epoch 342/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.390
1 - accuracy: 0.8396
Epoch 343/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.390
3 - accuracy: 0.8378
Epoch 344/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.389
7 - accuracy: 0.8381
Epoch 345/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.389
7 - accuracy: 0.8390
Epoch 346/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.389
6 - accuracy: 0.8390
Epoch 347/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.390
1 - accuracy: 0.8371
Epoch 348/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.389
0 - accuracy: 0.8380
Epoch 349/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.389
9 - accuracy: 0.8371
Epoch 350/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.389
7 - accuracy: 0.8380
Epoch 351/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.389
2 - accuracy: 0.8371
Epoch 352/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.389
3 - accuracy: 0.8381
Epoch 353/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.389
7 - accuracy: 0.8381
Epoch 354/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.389
3 - accuracy: 0.8388
Epoch 355/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.389
2 - accuracy: 0.8380
Epoch 356/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.389
6 - accuracy: 0.8383
Epoch 357/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.389
6 - accuracy: 0.8391
Epoch 358/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.389
2 - accuracy: 0.8411
Epoch 359/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
8 - accuracy: 0.8378
Epoch 360/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.389
```

```
7 - accuracy: 0.8376
Epoch 361/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.389
4 - accuracy: 0.8376
Epoch 362/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.389
7 - accuracy: 0.8388
Epoch 363/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.389
8 - accuracy: 0.8370
Epoch 364/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.389
6 - accuracy: 0.8381
Epoch 365/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
7 - accuracy: 0.8368
Epoch 366/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.389
2 - accuracy: 0.8386
Epoch 367/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.389
8 - accuracy: 0.8398
Epoch 368/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.389
9 - accuracy: 0.8368
Epoch 369/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
3 - accuracy: 0.8390
Epoch 370/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
6 - accuracy: 0.8380
Epoch 371/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
6 - accuracy: 0.8376
Epoch 372/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.389
6 - accuracy: 0.8360
Epoch 373/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.389
1 - accuracy: 0.8388
Epoch 374/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.389
8 - accuracy: 0.8383
Epoch 375/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
3 - accuracy: 0.8371
Epoch 376/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.389
8 - accuracy: 0.8380
Epoch 377/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.389
9 - accuracy: 0.8386
Epoch 378/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
6 - accuracy: 0.8385
Epoch 379/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
6 - accuracy: 0.8383
Epoch 380/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.389
9 - accuracy: 0.8367
```

Epoch 381/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.390  
1 - accuracy: 0.8383  
Epoch 382/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.390  
0 - accuracy: 0.8385  
Epoch 383/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.389  
9 - accuracy: 0.8371  
Epoch 384/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.389  
4 - accuracy: 0.8358  
Epoch 385/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.389  
3 - accuracy: 0.8373  
Epoch 386/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.389  
4 - accuracy: 0.8383  
Epoch 387/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.389  
4 - accuracy: 0.8386  
Epoch 388/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.388  
8 - accuracy: 0.8376  
Epoch 389/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.389  
2 - accuracy: 0.8400  
Epoch 390/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.389  
6 - accuracy: 0.8395  
Epoch 391/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.388  
6 - accuracy: 0.8350  
Epoch 392/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.390  
1 - accuracy: 0.8378  
Epoch 393/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.389  
3 - accuracy: 0.8383  
Epoch 394/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.389  
1 - accuracy: 0.8386  
Epoch 395/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.389  
5 - accuracy: 0.8388  
Epoch 396/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.389  
7 - accuracy: 0.8398  
Epoch 397/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.389  
6 - accuracy: 0.8375  
Epoch 398/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.389  
4 - accuracy: 0.8391  
Epoch 399/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.389  
4 - accuracy: 0.8380 - loss: 0.379  
Epoch 400/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.389  
8 - accuracy: 0.8378  
Epoch 401/500

```
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
4 - accuracy: 0.8380
Epoch 402/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
6 - accuracy: 0.8386
Epoch 403/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.389
5 - accuracy: 0.8395
Epoch 404/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.389
4 - accuracy: 0.8383
Epoch 405/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.389
9 - accuracy: 0.8373
Epoch 406/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
9 - accuracy: 0.8367
Epoch 407/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.389
7 - accuracy: 0.8391
Epoch 408/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.389
5 - accuracy: 0.8396
Epoch 409/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.389
5 - accuracy: 0.8383
Epoch 410/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
2 - accuracy: 0.8388 - loss: 0.3883 - accu
Epoch 411/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.390
0 - accuracy: 0.8403
Epoch 412/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.389
3 - accuracy: 0.8376
Epoch 413/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.389
1 - accuracy: 0.8378
Epoch 414/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
1 - accuracy: 0.8375
Epoch 415/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.389
2 - accuracy: 0.8396
Epoch 416/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
2 - accuracy: 0.8388
Epoch 417/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.389
3 - accuracy: 0.8381
Epoch 418/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.389
3 - accuracy: 0.8381
Epoch 419/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.389
7 - accuracy: 0.8383
Epoch 420/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.389
6 - accuracy: 0.8378
Epoch 421/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.389
```



```
0 - accuracy: 0.8386
Epoch 422/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
0 - accuracy: 0.8371
Epoch 423/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.389
0 - accuracy: 0.8388
Epoch 424/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
6 - accuracy: 0.8383
Epoch 425/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.389
3 - accuracy: 0.8371
Epoch 426/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.389
4 - accuracy: 0.8368
Epoch 427/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.389
0 - accuracy: 0.8378
Epoch 428/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.389
5 - accuracy: 0.8360
Epoch 429/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
1 - accuracy: 0.8373
Epoch 430/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.389
5 - accuracy: 0.8365
Epoch 431/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.389
8 - accuracy: 0.8381
Epoch 432/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
2 - accuracy: 0.8381
Epoch 433/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
3 - accuracy: 0.8381
Epoch 434/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.389
5 - accuracy: 0.8386
Epoch 435/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.389
4 - accuracy: 0.8380
Epoch 436/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.389
4 - accuracy: 0.8376
Epoch 437/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.389
5 - accuracy: 0.8385
Epoch 438/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
6 - accuracy: 0.8371
Epoch 439/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
3 - accuracy: 0.8378
Epoch 440/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
3 - accuracy: 0.8391
Epoch 441/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
2 - accuracy: 0.8363
```

Epoch 442/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.389  
1 - accuracy: 0.8386  
Epoch 443/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.389  
1 - accuracy: 0.8386  
Epoch 444/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.389  
7 - accuracy: 0.8393  
Epoch 445/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.389  
4 - accuracy: 0.8376  
Epoch 446/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.388  
5 - accuracy: 0.8388  
Epoch 447/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.388  
8 - accuracy: 0.8375  
Epoch 448/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.389  
7 - accuracy: 0.8358  
Epoch 449/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.389  
5 - accuracy: 0.8383  
Epoch 450/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.389  
3 - accuracy: 0.8375  
Epoch 451/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.389  
3 - accuracy: 0.8385  
Epoch 452/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.389  
5 - accuracy: 0.8360  
Epoch 453/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.389  
6 - accuracy: 0.8380  
Epoch 454/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.389  
3 - accuracy: 0.8390  
Epoch 455/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.389  
5 - accuracy: 0.8371  
Epoch 456/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.389  
1 - accuracy: 0.8378  
Epoch 457/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.389  
1 - accuracy: 0.8367  
Epoch 458/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.389  
1 - accuracy: 0.8373  
Epoch 459/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.388  
6 - accuracy: 0.8375  
Epoch 460/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.389  
0 - accuracy: 0.8370  
Epoch 461/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.389  
4 - accuracy: 0.8367  
Epoch 462/500

```
6030/6030 [=====] - 1s 171us/sample - loss: 0.389
2 - accuracy: 0.8373
Epoch 463/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.389
4 - accuracy: 0.8375
Epoch 464/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.389
6 - accuracy: 0.8365
Epoch 465/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.389
1 - accuracy: 0.8386
Epoch 466/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.389
0 - accuracy: 0.8376
Epoch 467/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
2 - accuracy: 0.8386
Epoch 468/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
4 - accuracy: 0.8380
Epoch 469/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.388
8 - accuracy: 0.8373
Epoch 470/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.388
7 - accuracy: 0.8363
Epoch 471/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.389
2 - accuracy: 0.8376
Epoch 472/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.389
3 - accuracy: 0.8398
Epoch 473/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.389
2 - accuracy: 0.8393
Epoch 474/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.389
1 - accuracy: 0.8385
Epoch 475/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.388
8 - accuracy: 0.8365
Epoch 476/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.388
8 - accuracy: 0.8376
Epoch 477/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.388
9 - accuracy: 0.8390
Epoch 478/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.389
1 - accuracy: 0.8380
Epoch 479/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
2 - accuracy: 0.8371
Epoch 480/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.389
0 - accuracy: 0.8378
Epoch 481/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.388
5 - accuracy: 0.8378
Epoch 482/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.389
```

```
3 - accuracy: 0.8385
Epoch 483/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.389
0 - accuracy: 0.8398
Epoch 484/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.388
8 - accuracy: 0.8386
Epoch 485/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.388
9 - accuracy: 0.8391
Epoch 486/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
0 - accuracy: 0.8390
Epoch 487/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.388
6 - accuracy: 0.8390
Epoch 488/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.388
9 - accuracy: 0.8367
Epoch 489/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.389
4 - accuracy: 0.8386
Epoch 490/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.388
9 - accuracy: 0.8403
Epoch 491/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
0 - accuracy: 0.8385
Epoch 492/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
1 - accuracy: 0.8376
Epoch 493/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.388
8 - accuracy: 0.8403
Epoch 494/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.388
9 - accuracy: 0.8365
Epoch 495/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.389
3 - accuracy: 0.8371
Epoch 496/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.388
9 - accuracy: 0.8386
Epoch 497/500
6030/6030 [=====] - 1s 224us/sample - loss: 0.389
2 - accuracy: 0.8375
Epoch 498/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.389
3 - accuracy: 0.8373
Epoch 499/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.389
4 - accuracy: 0.8370
Epoch 500/500
6030/6030 [=====] - 1s 224us/sample - loss: 0.388
6 - accuracy: 0.8380
Train on 6030 samples
Epoch 1/500
6030/6030 [=====] - 2s 330us/sample - loss: 0.603
4 - accuracy: 0.7920
Epoch 2/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.439
```

```
0 - accuracy: 0.7950
Epoch 3/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.422
9 - accuracy: 0.8197
Epoch 4/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.414
8 - accuracy: 0.8227
Epoch 5/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.407
1 - accuracy: 0.8259
Epoch 6/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.400
8 - accuracy: 0.8270
Epoch 7/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.395
8 - accuracy: 0.8282
Epoch 8/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.391
6 - accuracy: 0.8290
Epoch 9/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.387
8 - accuracy: 0.8294
Epoch 10/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.384
7 - accuracy: 0.8312
Epoch 11/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.381
8 - accuracy: 0.8308
Epoch 12/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.379
6 - accuracy: 0.8315
Epoch 13/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.376
9 - accuracy: 0.8408
Epoch 14/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.375
7 - accuracy: 0.8406
Epoch 15/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.372
7 - accuracy: 0.8436
Epoch 16/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.371
8 - accuracy: 0.8461
Epoch 17/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.369
8 - accuracy: 0.8463
Epoch 18/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.368
9 - accuracy: 0.8476
Epoch 19/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.367
5 - accuracy: 0.8481 - loss: 0.3
Epoch 20/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.366
4 - accuracy: 0.8511
Epoch 21/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.365
7 - accuracy: 0.8496
Epoch 22/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.364
4 - accuracy: 0.8507
```

Epoch 23/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.363  
3 - accuracy: 0.8522

Epoch 24/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.362  
2 - accuracy: 0.8524

Epoch 25/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.361  
5 - accuracy: 0.8554

Epoch 26/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.360  
7 - accuracy: 0.8526

Epoch 27/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.359  
5 - accuracy: 0.8529

Epoch 28/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.359  
7 - accuracy: 0.8547

Epoch 29/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.358  
3 - accuracy: 0.8552

Epoch 30/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.358  
0 - accuracy: 0.8544

Epoch 31/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.357  
0 - accuracy: 0.8546

Epoch 32/500  
6030/6030 [=====] - 1s 219us/sample - loss: 0.356  
6 - accuracy: 0.8562

Epoch 33/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.355  
8 - accuracy: 0.8570

Epoch 34/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.355  
8 - accuracy: 0.8577

Epoch 35/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.354  
5 - accuracy: 0.8554

Epoch 36/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.355  
1 - accuracy: 0.8549

Epoch 37/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.354  
3 - accuracy: 0.8551

Epoch 38/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.352  
9 - accuracy: 0.8574

Epoch 39/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.352  
6 - accuracy: 0.8592

Epoch 40/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.352  
7 - accuracy: 0.8564

Epoch 41/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.352  
4 - accuracy: 0.8587

Epoch 42/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.351  
3 - accuracy: 0.8570

Epoch 43/500

```
6030/6030 [=====] - 1s 169us/sample - loss: 0.351
0 - accuracy: 0.8579
Epoch 44/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.350
1 - accuracy: 0.8574
Epoch 45/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.349
5 - accuracy: 0.8566
Epoch 46/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.349
6 - accuracy: 0.8566
Epoch 47/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.348
4 - accuracy: 0.8570
Epoch 48/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.349
6 - accuracy: 0.8577
Epoch 49/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.348
5 - accuracy: 0.8585
Epoch 50/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.347
9 - accuracy: 0.8577
Epoch 51/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.347
0 - accuracy: 0.8574
Epoch 52/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.347
3 - accuracy: 0.8557
Epoch 53/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.347
5 - accuracy: 0.8567
Epoch 54/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.346
5 - accuracy: 0.8600
Epoch 55/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.345
8 - accuracy: 0.8574
Epoch 56/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.345
3 - accuracy: 0.8566
Epoch 57/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.346
2 - accuracy: 0.8554 -
Epoch 58/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.344
5 - accuracy: 0.8597
Epoch 59/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.345
2 - accuracy: 0.8600
Epoch 60/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.344
8 - accuracy: 0.8597
Epoch 61/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.344
3 - accuracy: 0.8592
Epoch 62/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.344
3 - accuracy: 0.8579
Epoch 63/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
```

```
9 - accuracy: 0.8544
Epoch 64/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.344
3 - accuracy: 0.8580
Epoch 65/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.344
0 - accuracy: 0.8575
Epoch 66/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.343
5 - accuracy: 0.8597
Epoch 67/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.343
7 - accuracy: 0.8569
Epoch 68/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.343
6 - accuracy: 0.8607
Epoch 69/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.342
5 - accuracy: 0.8604
Epoch 70/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.343
2 - accuracy: 0.8604
Epoch 71/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.342
7 - accuracy: 0.8602
Epoch 72/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.342
2 - accuracy: 0.8575
Epoch 73/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.342
8 - accuracy: 0.8600
Epoch 74/500
6030/6030 [=====] - ETA: 0s - loss: 0.3423 - accuracy: 0.86 - 1s 170us/sample - loss: 0.3419 - accuracy: 0.8622
Epoch 75/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.342
5 - accuracy: 0.8590
Epoch 76/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.342
4 - accuracy: 0.8585
Epoch 77/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.341
0 - accuracy: 0.8589
Epoch 78/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.342
4 - accuracy: 0.8579
Epoch 79/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.340
4 - accuracy: 0.8602
Epoch 80/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.340
7 - accuracy: 0.8597
Epoch 81/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.341
1 - accuracy: 0.8589
Epoch 82/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.340
3 - accuracy: 0.8595
Epoch 83/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.340
8 - accuracy: 0.8627
```



Epoch 84/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.340  
7 - accuracy: 0.8590  
Epoch 85/500  
6030/6030 [=====] - 1s 168us/sample - loss: 0.340  
5 - accuracy: 0.8615  
Epoch 86/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.341  
1 - accuracy: 0.8597  
Epoch 87/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.339  
9 - accuracy: 0.8612  
Epoch 88/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.339  
9 - accuracy: 0.8614  
Epoch 89/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.340  
7 - accuracy: 0.8610  
Epoch 90/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.340  
0 - accuracy: 0.8627  
Epoch 91/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.338  
9 - accuracy: 0.8607  
Epoch 92/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.339  
6 - accuracy: 0.8602  
Epoch 93/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.339  
2 - accuracy: 0.8609  
Epoch 94/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.338  
4 - accuracy: 0.8585  
Epoch 95/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.339  
6 - accuracy: 0.8617  
Epoch 96/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.338  
1 - accuracy: 0.8595  
Epoch 97/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.338  
6 - accuracy: 0.8615  
Epoch 98/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.338  
3 - accuracy: 0.8632  
Epoch 99/500  
6030/6030 [=====] - 1s 168us/sample - loss: 0.337  
7 - accuracy: 0.8615  
Epoch 100/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.337  
8 - accuracy: 0.8615  
Epoch 101/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.340  
1 - accuracy: 0.8585  
Epoch 102/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.338  
2 - accuracy: 0.8609  
Epoch 103/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.338  
3 - accuracy: 0.8590  
Epoch 104/500

```
6030/6030 [=====] - 1s 170us/sample - loss: 0.338
4 - accuracy: 0.8614
Epoch 105/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.338
0 - accuracy: 0.8577
Epoch 106/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.338
1 - accuracy: 0.8595
Epoch 107/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.337
7 - accuracy: 0.8612
Epoch 108/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.338
5 - accuracy: 0.8590
Epoch 109/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.337
8 - accuracy: 0.8595
Epoch 110/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.338
2 - accuracy: 0.8584
Epoch 111/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.337
3 - accuracy: 0.8615
Epoch 112/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.337
7 - accuracy: 0.8627
Epoch 113/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.337
5 - accuracy: 0.8619
Epoch 114/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.337
6 - accuracy: 0.8589
Epoch 115/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.336
9 - accuracy: 0.8609
Epoch 116/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.338
3 - accuracy: 0.8595
Epoch 117/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.337
2 - accuracy: 0.8615
Epoch 118/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.337
3 - accuracy: 0.8597
Epoch 119/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.337
2 - accuracy: 0.8615
Epoch 120/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.337
6 - accuracy: 0.8599
Epoch 121/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.337
7 - accuracy: 0.8610
Epoch 122/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.335
7 - accuracy: 0.8615
Epoch 123/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.336
9 - accuracy: 0.8629
Epoch 124/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.337
```

```
1 - accuracy: 0.8582
Epoch 125/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.337
1 - accuracy: 0.8592
Epoch 126/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.335
3 - accuracy: 0.8615
Epoch 127/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.337
8 - accuracy: 0.8595
Epoch 128/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.335
9 - accuracy: 0.8627
Epoch 129/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.337
2 - accuracy: 0.8612
Epoch 130/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.337
7 - accuracy: 0.8597
Epoch 131/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.337
1 - accuracy: 0.8597
Epoch 132/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.337
1 - accuracy: 0.8614
Epoch 133/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.336
6 - accuracy: 0.8592
Epoch 134/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.335
6 - accuracy: 0.8624
Epoch 135/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.337
2 - accuracy: 0.8589
Epoch 136/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.336
7 - accuracy: 0.8617
Epoch 137/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.337
4 - accuracy: 0.8592
Epoch 138/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.336
8 - accuracy: 0.8592
Epoch 139/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.335
8 - accuracy: 0.8610
Epoch 140/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.336
6 - accuracy: 0.8594
Epoch 141/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.336
3 - accuracy: 0.8609
Epoch 142/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.336
4 - accuracy: 0.8605
Epoch 143/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.335
7 - accuracy: 0.8574
Epoch 144/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.336
5 - accuracy: 0.8599
```

Epoch 145/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.336  
4 - accuracy: 0.8579  
Epoch 146/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.335  
7 - accuracy: 0.8600  
Epoch 147/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.335  
7 - accuracy: 0.8609  
Epoch 148/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.335  
4 - accuracy: 0.8584  
Epoch 149/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.336  
1 - accuracy: 0.8619  
Epoch 150/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.336  
0 - accuracy: 0.8589  
Epoch 151/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.336  
0 - accuracy: 0.8597  
Epoch 152/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.335  
6 - accuracy: 0.8602  
Epoch 153/500  
6030/6030 [=====] - 1s 167us/sample - loss: 0.336  
2 - accuracy: 0.8589  
Epoch 154/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.336  
3 - accuracy: 0.8609  
Epoch 155/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.334  
7 - accuracy: 0.8597  
Epoch 156/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.335  
4 - accuracy: 0.8600  
Epoch 157/500  
6030/6030 [=====] - 1s 168us/sample - loss: 0.334  
5 - accuracy: 0.8609  
Epoch 158/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.335  
8 - accuracy: 0.8607  
Epoch 159/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.335  
6 - accuracy: 0.8614  
Epoch 160/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.336  
0 - accuracy: 0.8607  
Epoch 161/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.336  
1 - accuracy: 0.8605  
Epoch 162/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.336  
0 - accuracy: 0.8592  
Epoch 163/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.336  
5 - accuracy: 0.8575  
Epoch 164/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.334  
7 - accuracy: 0.8599  
Epoch 165/500

```
6030/6030 [=====] - 1s 175us/sample - loss: 0.335
0 - accuracy: 0.8585
Epoch 166/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.336
4 - accuracy: 0.8585
Epoch 167/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.336
3 - accuracy: 0.8592
Epoch 168/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.335
8 - accuracy: 0.8615
Epoch 169/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.335
3 - accuracy: 0.8585
Epoch 170/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.335
4 - accuracy: 0.8653
Epoch 171/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.334
5 - accuracy: 0.8614
Epoch 172/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.335
9 - accuracy: 0.8614
Epoch 173/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.335
4 - accuracy: 0.8599
Epoch 174/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.335
6 - accuracy: 0.8595
Epoch 175/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.334
7 - accuracy: 0.8622
Epoch 176/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.335
2 - accuracy: 0.8595
Epoch 177/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.336
8 - accuracy: 0.8594
Epoch 178/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.335
4 - accuracy: 0.8594
Epoch 179/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.335
3 - accuracy: 0.8592
Epoch 180/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.335
0 - accuracy: 0.8622
Epoch 181/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.335
0 - accuracy: 0.8614
Epoch 182/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.335
5 - accuracy: 0.8605
Epoch 183/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.335
0 - accuracy: 0.8602
Epoch 184/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.336
5 - accuracy: 0.8605
Epoch 185/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.334
```

```
3 - accuracy: 0.8592
Epoch 186/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.335
2 - accuracy: 0.8612
Epoch 187/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.335
1 - accuracy: 0.8597
Epoch 188/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.334
3 - accuracy: 0.8604
Epoch 189/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.335
6 - accuracy: 0.8610
Epoch 190/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.335
4 - accuracy: 0.8612
Epoch 191/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.334
9 - accuracy: 0.8587
Epoch 192/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.334
5 - accuracy: 0.8605
Epoch 193/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.334
3 - accuracy: 0.8602
Epoch 194/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.335
2 - accuracy: 0.8615
Epoch 195/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.334
0 - accuracy: 0.8589
Epoch 196/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.334
0 - accuracy: 0.8594
Epoch 197/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.334
3 - accuracy: 0.8607
Epoch 198/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.334
1 - accuracy: 0.8592
Epoch 199/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.334
8 - accuracy: 0.8615
Epoch 200/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.333
9 - accuracy: 0.8597
Epoch 201/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.333
9 - accuracy: 0.8614
Epoch 202/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.334
3 - accuracy: 0.8585
Epoch 203/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.334
9 - accuracy: 0.8592
Epoch 204/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.333
9 - accuracy: 0.8609
Epoch 205/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.333
7 - accuracy: 0.8609
```

Epoch 206/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.333  
9 - accuracy: 0.8610  
Epoch 207/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.334  
0 - accuracy: 0.8612  
Epoch 208/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.333  
5 - accuracy: 0.8599  
Epoch 209/500  
6030/6030 [=====] - ETA: 0s - loss: 0.3330 - accuracy: 0.85 - 1s 180us/sample - loss: 0.3332 - accuracy: 0.8585  
Epoch 210/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.333  
9 - accuracy: 0.8607  
Epoch 211/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.333  
9 - accuracy: 0.8614  
Epoch 212/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.333  
7 - accuracy: 0.8584  
Epoch 213/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.334  
1 - accuracy: 0.8610  
Epoch 214/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.333  
2 - accuracy: 0.8590  
Epoch 215/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.333  
4 - accuracy: 0.8604  
Epoch 216/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.333  
6 - accuracy: 0.8584  
Epoch 217/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.332  
7 - accuracy: 0.8599  
Epoch 218/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.333  
5 - accuracy: 0.8615 - loss: 0.3  
Epoch 219/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.333  
1 - accuracy: 0.8605  
Epoch 220/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.333  
3 - accuracy: 0.8595  
Epoch 221/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.333  
1 - accuracy: 0.8605  
Epoch 222/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.333  
4 - accuracy: 0.8604  
Epoch 223/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.332  
5 - accuracy: 0.8614  
Epoch 224/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.333  
3 - accuracy: 0.8584  
Epoch 225/500  
6030/6030 [=====] - 1s 168us/sample - loss: 0.332  
7 - accuracy: 0.8612  
Epoch 226/500

```
6030/6030 [=====] - 1s 171us/sample - loss: 0.333
3 - accuracy: 0.8607
Epoch 227/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.332
1 - accuracy: 0.8595
Epoch 228/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.332
4 - accuracy: 0.8604
Epoch 229/500
6030/6030 [=====] - ETA: 0s - loss: 0.3330 - accu
racy: 0.86 - 1s 177us/sample - loss: 0.3324 - accuracy: 0.8607
Epoch 230/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.333
9 - accuracy: 0.8592
Epoch 231/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.333
1 - accuracy: 0.8592
Epoch 232/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.332
5 - accuracy: 0.8640
Epoch 233/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.332
9 - accuracy: 0.8599
Epoch 234/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.332
6 - accuracy: 0.8615
Epoch 235/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.332
7 - accuracy: 0.8592
Epoch 236/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.333
1 - accuracy: 0.8600
Epoch 237/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.332
5 - accuracy: 0.8594
Epoch 238/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.332
2 - accuracy: 0.8599
Epoch 239/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.332
6 - accuracy: 0.8590
Epoch 240/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.332
0 - accuracy: 0.8609
Epoch 241/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.332
2 - accuracy: 0.8594
Epoch 242/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.332
6 - accuracy: 0.8595
Epoch 243/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.332
3 - accuracy: 0.8605
Epoch 244/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.332
3 - accuracy: 0.8589
Epoch 245/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.332
1 - accuracy: 0.8605
Epoch 246/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.331
```



```
8 - accuracy: 0.8594
Epoch 247/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.333
8 - accuracy: 0.8605
Epoch 248/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.332
8 - accuracy: 0.8594
Epoch 249/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.332
0 - accuracy: 0.8592
Epoch 250/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.332
2 - accuracy: 0.8614
Epoch 251/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.332
2 - accuracy: 0.8612
Epoch 252/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.332
1 - accuracy: 0.8590
Epoch 253/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.332
5 - accuracy: 0.8617
Epoch 254/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.332
5 - accuracy: 0.8590
Epoch 255/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.332
1 - accuracy: 0.8614
Epoch 256/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.332
1 - accuracy: 0.8604
Epoch 257/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.332
6 - accuracy: 0.8604
Epoch 258/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.331
5 - accuracy: 0.8627
Epoch 259/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.332
0 - accuracy: 0.8622
Epoch 260/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.331
6 - accuracy: 0.8600
Epoch 261/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.332
4 - accuracy: 0.8600
Epoch 262/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.331
6 - accuracy: 0.8610
Epoch 263/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.332
0 - accuracy: 0.8597
Epoch 264/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.332
0 - accuracy: 0.8615
Epoch 265/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.331
6 - accuracy: 0.8582
Epoch 266/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.332
9 - accuracy: 0.8614
```

Epoch 267/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.331  
6 - accuracy: 0.8614  
Epoch 268/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.332  
8 - accuracy: 0.8589  
Epoch 269/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.331  
9 - accuracy: 0.8615  
Epoch 270/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.332  
1 - accuracy: 0.8602  
Epoch 271/500  
6030/6030 [=====] - 2s 268us/sample - loss: 0.331  
5 - accuracy: 0.8590  
Epoch 272/500  
6030/6030 [=====] - 1s 244us/sample - loss: 0.332  
1 - accuracy: 0.8612  
Epoch 273/500  
6030/6030 [=====] - 1s 215us/sample - loss: 0.331  
2 - accuracy: 0.8594  
Epoch 274/500  
6030/6030 [=====] - 1s 247us/sample - loss: 0.331  
7 - accuracy: 0.8587  
Epoch 275/500  
6030/6030 [=====] - 2s 330us/sample - loss: 0.332  
5 - accuracy: 0.8592  
Epoch 276/500  
6030/6030 [=====] - 1s 223us/sample - loss: 0.330  
3 - accuracy: 0.8605  
Epoch 277/500  
6030/6030 [=====] - 2s 283us/sample - loss: 0.330  
9 - accuracy: 0.8609  
Epoch 278/500  
6030/6030 [=====] - 1s 220us/sample - loss: 0.331  
4 - accuracy: 0.8647  
Epoch 279/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.331  
7 - accuracy: 0.8604  
Epoch 280/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.331  
3 - accuracy: 0.8587  
Epoch 281/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.331  
3 - accuracy: 0.8599  
Epoch 282/500  
6030/6030 [=====] - 1s 233us/sample - loss: 0.332  
8 - accuracy: 0.8595  
Epoch 283/500  
6030/6030 [=====] - 2s 285us/sample - loss: 0.331  
5 - accuracy: 0.8614  
Epoch 284/500  
6030/6030 [=====] - 1s 232us/sample - loss: 0.331  
4 - accuracy: 0.8602  
Epoch 285/500  
6030/6030 [=====] - 2s 303us/sample - loss: 0.331  
2 - accuracy: 0.8610  
Epoch 286/500  
6030/6030 [=====] - 1s 237us/sample - loss: 0.331  
7 - accuracy: 0.8604  
Epoch 287/500

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6030/6030 [=====] - 2s 292us/sample - loss: 0.331
2 - accuracy: 0.8607
Epoch 288/500
6030/6030 [=====] - 2s 281us/sample - loss: 0.331
4 - accuracy: 0.8595
Epoch 289/500
6030/6030 [=====] - 1s 234us/sample - loss: 0.331
1 - accuracy: 0.8638
Epoch 290/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.330
8 - accuracy: 0.8609
Epoch 291/500
6030/6030 [=====] - 1s 232us/sample - loss: 0.330
4 - accuracy: 0.8594
Epoch 292/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.330
8 - accuracy: 0.8604
Epoch 293/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.332
5 - accuracy: 0.8619
Epoch 294/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.330
6 - accuracy: 0.8605
Epoch 295/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.331
2 - accuracy: 0.8609
Epoch 296/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.331
2 - accuracy: 0.8594
Epoch 297/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.330
8 - accuracy: 0.8589
Epoch 298/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.330
7 - accuracy: 0.8619
Epoch 299/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.330
4 - accuracy: 0.8594
Epoch 300/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.332
0 - accuracy: 0.8595
Epoch 301/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.330
1 - accuracy: 0.8633
Epoch 302/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.330
9 - accuracy: 0.8602
Epoch 303/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.330
1 - accuracy: 0.8624
Epoch 304/500
6030/6030 [=====] - 1s 231us/sample - loss: 0.330
5 - accuracy: 0.8597
Epoch 305/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.331
3 - accuracy: 0.8580
Epoch 306/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.331
7 - accuracy: 0.8585
Epoch 307/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.330
```

```
9 - accuracy: 0.8604
Epoch 308/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.330
6 - accuracy: 0.8643
Epoch 309/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.330
1 - accuracy: 0.8637
Epoch 310/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.330
9 - accuracy: 0.8605
Epoch 311/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.330
9 - accuracy: 0.8610
Epoch 312/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.330
8 - accuracy: 0.8620
Epoch 313/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.330
5 - accuracy: 0.8617
Epoch 314/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.331
2 - accuracy: 0.8624
Epoch 315/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.330
2 - accuracy: 0.8624
Epoch 316/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.330
8 - accuracy: 0.8605
Epoch 317/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.331
4 - accuracy: 0.8589
Epoch 318/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.330
6 - accuracy: 0.8597
Epoch 319/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.329
9 - accuracy: 0.8605
Epoch 320/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.330
7 - accuracy: 0.8617
Epoch 321/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.330
9 - accuracy: 0.8597
Epoch 322/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.329
4 - accuracy: 0.8612
Epoch 323/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.330
9 - accuracy: 0.8620
Epoch 324/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.330
7 - accuracy: 0.8602
Epoch 325/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.330
1 - accuracy: 0.8604
Epoch 326/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.330
6 - accuracy: 0.8619
Epoch 327/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.330
6 - accuracy: 0.8625
```

Epoch 328/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.330  
3 - accuracy: 0.8597  
Epoch 329/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.331  
3 - accuracy: 0.8620  
Epoch 330/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.329  
6 - accuracy: 0.8607  
Epoch 331/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.329  
9 - accuracy: 0.8597  
Epoch 332/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.331  
0 - accuracy: 0.8594  
Epoch 333/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.330  
6 - accuracy: 0.8609  
Epoch 334/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.330  
6 - accuracy: 0.8600  
Epoch 335/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.330  
5 - accuracy: 0.8594  
Epoch 336/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.330  
4 - accuracy: 0.8605  
Epoch 337/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.330  
2 - accuracy: 0.8614  
Epoch 338/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.331  
1 - accuracy: 0.8607  
Epoch 339/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.330  
0 - accuracy: 0.8615  
Epoch 340/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.330  
7 - accuracy: 0.8619  
Epoch 341/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.330  
1 - accuracy: 0.8615  
Epoch 342/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.330  
1 - accuracy: 0.8599  
Epoch 343/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.329  
8 - accuracy: 0.8635  
Epoch 344/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.329  
9 - accuracy: 0.8615  
Epoch 345/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.329  
9 - accuracy: 0.8590  
Epoch 346/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.329  
5 - accuracy: 0.8619  
Epoch 347/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.329  
3 - accuracy: 0.8638  
Epoch 348/500

```
6030/6030 [=====] - 1s 199us/sample - loss: 0.330
7 - accuracy: 0.8615
Epoch 349/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.330
5 - accuracy: 0.8602
Epoch 350/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.330
4 - accuracy: 0.8607
Epoch 351/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.329
9 - accuracy: 0.8597
Epoch 352/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.330
3 - accuracy: 0.8595
Epoch 353/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.330
1 - accuracy: 0.8625
Epoch 354/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.330
5 - accuracy: 0.8600
Epoch 355/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.330
4 - accuracy: 0.8597
Epoch 356/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.330
0 - accuracy: 0.8624
Epoch 357/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.330
6 - accuracy: 0.8592
Epoch 358/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.330
0 - accuracy: 0.8604
Epoch 359/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.329
8 - accuracy: 0.8599
Epoch 360/500
6030/6030 [=====] - 1s 248us/sample - loss: 0.330
0 - accuracy: 0.8605
Epoch 361/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.330
2 - accuracy: 0.8605
Epoch 362/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.329
5 - accuracy: 0.8627
Epoch 363/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.329
8 - accuracy: 0.8645 - loss: 0.3292 - accuracy: 0.86
Epoch 364/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.329
8 - accuracy: 0.8609
Epoch 365/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.330
1 - accuracy: 0.8629
Epoch 366/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.329
5 - accuracy: 0.8599
Epoch 367/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.329
4 - accuracy: 0.8610
Epoch 368/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.330
```

```
0 - accuracy: 0.8612
Epoch 369/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.328
9 - accuracy: 0.8627
Epoch 370/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.330
5 - accuracy: 0.8602
Epoch 371/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.329
3 - accuracy: 0.8624
Epoch 372/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.329
5 - accuracy: 0.8615
Epoch 373/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.329
3 - accuracy: 0.8607
Epoch 374/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.330
5 - accuracy: 0.8597
Epoch 375/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.330
0 - accuracy: 0.8614
Epoch 376/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.329
9 - accuracy: 0.8607
Epoch 377/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.329
7 - accuracy: 0.8610
Epoch 378/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.330
0 - accuracy: 0.8625
Epoch 379/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.329
8 - accuracy: 0.8599
Epoch 380/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.329
6 - accuracy: 0.8607
Epoch 381/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.329
4 - accuracy: 0.8600
Epoch 382/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.329
4 - accuracy: 0.8619
Epoch 383/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.329
6 - accuracy: 0.8620
Epoch 384/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.329
9 - accuracy: 0.8597
Epoch 385/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.329
4 - accuracy: 0.8589
Epoch 386/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.329
6 - accuracy: 0.8612
Epoch 387/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.329
9 - accuracy: 0.8614
Epoch 388/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.328
9 - accuracy: 0.8622
```

Epoch 389/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.329  
8 - accuracy: 0.8607  
Epoch 390/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.330  
5 - accuracy: 0.8624  
Epoch 391/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.330  
2 - accuracy: 0.8607  
Epoch 392/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.330  
0 - accuracy: 0.8615  
Epoch 393/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.328  
8 - accuracy: 0.8609 - loss: 0.3312 - accuracy  
Epoch 394/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.329  
6 - accuracy: 0.8625  
Epoch 395/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.329  
5 - accuracy: 0.8614  
Epoch 396/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.329  
5 - accuracy: 0.8615  
Epoch 397/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.329  
5 - accuracy: 0.8617  
Epoch 398/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.330  
3 - accuracy: 0.8624  
Epoch 399/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.329  
8 - accuracy: 0.8627  
Epoch 400/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.329  
7 - accuracy: 0.8600  
Epoch 401/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.329  
4 - accuracy: 0.8624  
Epoch 402/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.328  
7 - accuracy: 0.8620  
Epoch 403/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.329  
4 - accuracy: 0.8605  
Epoch 404/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.329  
7 - accuracy: 0.8597  
Epoch 405/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.328  
8 - accuracy: 0.8622  
Epoch 406/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.330  
2 - accuracy: 0.8622  
Epoch 407/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.329  
4 - accuracy: 0.8589  
Epoch 408/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.329  
5 - accuracy: 0.8600  
Epoch 409/500



```
6030/6030 [=====] - 1s 171us/sample - loss: 0.328
9 - accuracy: 0.8629
Epoch 410/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.328
9 - accuracy: 0.8599
Epoch 411/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.329
5 - accuracy: 0.8627
Epoch 412/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.328
9 - accuracy: 0.8610
Epoch 413/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.330
2 - accuracy: 0.8624
Epoch 414/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.329
3 - accuracy: 0.8599
Epoch 415/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.329
4 - accuracy: 0.8585
Epoch 416/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.330
1 - accuracy: 0.8599
Epoch 417/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.328
4 - accuracy: 0.8619
Epoch 418/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.329
5 - accuracy: 0.8597
Epoch 419/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.329
1 - accuracy: 0.8615
Epoch 420/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.329
4 - accuracy: 0.8610
Epoch 421/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.329
7 - accuracy: 0.8605
Epoch 422/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.328
8 - accuracy: 0.8615
Epoch 423/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.329
2 - accuracy: 0.8597
Epoch 424/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.328
9 - accuracy: 0.8617
Epoch 425/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.329
3 - accuracy: 0.8614
Epoch 426/500
6030/6030 [=====] - 1s 236us/sample - loss: 0.329
0 - accuracy: 0.8610
Epoch 427/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.329
6 - accuracy: 0.8609
Epoch 428/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.329
1 - accuracy: 0.8630
Epoch 429/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.329
```

```
0 - accuracy: 0.8609
Epoch 430/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.329
7 - accuracy: 0.8630
Epoch 431/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.329
4 - accuracy: 0.8605
Epoch 432/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.328
3 - accuracy: 0.8617
Epoch 433/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.329
9 - accuracy: 0.8612
Epoch 434/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.329
0 - accuracy: 0.8597
Epoch 435/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.330
1 - accuracy: 0.8619
Epoch 436/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.328
8 - accuracy: 0.8629
Epoch 437/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.329
8 - accuracy: 0.8604
Epoch 438/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.329
6 - accuracy: 0.8619
Epoch 439/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.328
9 - accuracy: 0.8607
Epoch 440/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.328
9 - accuracy: 0.8612
Epoch 441/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.329
6 - accuracy: 0.8610
Epoch 442/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.330
4 - accuracy: 0.8647
Epoch 443/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.328
7 - accuracy: 0.8630
Epoch 444/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.328
4 - accuracy: 0.8617
Epoch 445/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.329
1 - accuracy: 0.8610
Epoch 446/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.329
2 - accuracy: 0.8612
Epoch 447/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.329
9 - accuracy: 0.8609
Epoch 448/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.329
3 - accuracy: 0.8584
Epoch 449/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.328
5 - accuracy: 0.8614
```

Epoch 450/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.329  
4 - accuracy: 0.8597  
Epoch 451/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.329  
7 - accuracy: 0.8614  
Epoch 452/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.328  
9 - accuracy: 0.8619  
Epoch 453/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.329  
7 - accuracy: 0.8612  
Epoch 454/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.329  
5 - accuracy: 0.8605  
Epoch 455/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.328  
2 - accuracy: 0.8633  
Epoch 456/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.328  
8 - accuracy: 0.8617  
Epoch 457/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.328  
6 - accuracy: 0.8619  
Epoch 458/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.328  
5 - accuracy: 0.8629  
Epoch 459/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.329  
4 - accuracy: 0.8633  
Epoch 460/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.328  
6 - accuracy: 0.8614  
Epoch 461/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.328  
7 - accuracy: 0.8620  
Epoch 462/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.330  
2 - accuracy: 0.8614  
Epoch 463/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.329  
3 - accuracy: 0.8624  
Epoch 464/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.329  
4 - accuracy: 0.8604  
Epoch 465/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.328  
8 - accuracy: 0.8619  
Epoch 466/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.328  
5 - accuracy: 0.8624  
Epoch 467/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.328  
4 - accuracy: 0.8609  
Epoch 468/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.328  
9 - accuracy: 0.8619  
Epoch 469/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.329  
1 - accuracy: 0.8619  
Epoch 470/500

```
6030/6030 [=====] - 1s 177us/sample - loss: 0.328
4 - accuracy: 0.8610
Epoch 471/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.329
9 - accuracy: 0.8620
Epoch 472/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.328
9 - accuracy: 0.8599
Epoch 473/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.328
9 - accuracy: 0.8609
Epoch 474/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.327
9 - accuracy: 0.8624
Epoch 475/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.329
4 - accuracy: 0.8587
Epoch 476/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.328
0 - accuracy: 0.8637
Epoch 477/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.328
1 - accuracy: 0.8599
Epoch 478/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.329
0 - accuracy: 0.8619
Epoch 479/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.329
3 - accuracy: 0.8610
Epoch 480/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.329
5 - accuracy: 0.8602
Epoch 481/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.328
5 - accuracy: 0.8633
Epoch 482/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.328
5 - accuracy: 0.8627
Epoch 483/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.329
2 - accuracy: 0.8609
Epoch 484/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.328
3 - accuracy: 0.8619
Epoch 485/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.329
4 - accuracy: 0.8617
Epoch 486/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.328
8 - accuracy: 0.8619
Epoch 487/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.329
0 - accuracy: 0.8610
Epoch 488/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.328
8 - accuracy: 0.8617
Epoch 489/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.328
8 - accuracy: 0.8627
Epoch 490/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.327
```

```
4 - accuracy: 0.8638
Epoch 491/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.327
5 - accuracy: 0.8614
Epoch 492/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.328
8 - accuracy: 0.8612
Epoch 493/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.328
5 - accuracy: 0.8620
Epoch 494/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.328
3 - accuracy: 0.8622
Epoch 495/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.329
1 - accuracy: 0.8619
Epoch 496/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.327
8 - accuracy: 0.8619
Epoch 497/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.328
6 - accuracy: 0.8612
Epoch 498/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.328
3 - accuracy: 0.8638
Epoch 499/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.328
5 - accuracy: 0.8597
Epoch 500/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.328
6 - accuracy: 0.8610
Train on 6030 samples
Epoch 1/500
6030/6030 [=====] - 2s 262us/sample - loss: 0.578
5 - accuracy: 0.7925
Epoch 2/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.439
8 - accuracy: 0.7925
Epoch 3/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.432
3 - accuracy: 0.7925
Epoch 4/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.429
9 - accuracy: 0.7925
Epoch 5/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.428
0 - accuracy: 0.7925
Epoch 6/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.426
3 - accuracy: 0.7925
Epoch 7/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.424
8 - accuracy: 0.8032
Epoch 8/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.423
1 - accuracy: 0.8231
Epoch 9/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.421
9 - accuracy: 0.8237
Epoch 10/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.420
```

```
2 - accuracy: 0.8244
Epoch 11/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.419
3 - accuracy: 0.8254
Epoch 12/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.418
7 - accuracy: 0.8265
Epoch 13/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.416
9 - accuracy: 0.8269
Epoch 14/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.416
2 - accuracy: 0.8262
Epoch 15/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.414
8 - accuracy: 0.8255
Epoch 16/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.413
1 - accuracy: 0.8280
Epoch 17/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.410
4 - accuracy: 0.8307
Epoch 18/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.407
5 - accuracy: 0.8320
Epoch 19/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.403
8 - accuracy: 0.8355
Epoch 20/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.400
1 - accuracy: 0.8345
Epoch 21/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.395
1 - accuracy: 0.8373
Epoch 22/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.391
5 - accuracy: 0.8373
Epoch 23/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.386
4 - accuracy: 0.8403
Epoch 24/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.382
2 - accuracy: 0.8403
Epoch 25/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.378
8 - accuracy: 0.8426
Epoch 26/500
6030/6030 [=====] - ETA: 0s - loss: 0.3757 - accuracy: 0.84 - 1s 178us/sample - loss: 0.3760 - accuracy: 0.8459
Epoch 27/500
6030/6030 [=====] - 1s 167us/sample - loss: 0.373
2 - accuracy: 0.8448
Epoch 28/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.371
7 - accuracy: 0.8491
Epoch 29/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.369
7 - accuracy: 0.8501
Epoch 30/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.368
9 - accuracy: 0.8476
```

Epoch 31/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.366  
9 - accuracy: 0.8459

Epoch 32/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.365  
4 - accuracy: 0.8468

Epoch 33/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.365  
5 - accuracy: 0.8494

Epoch 34/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.363  
5 - accuracy: 0.8501

Epoch 35/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.362  
9 - accuracy: 0.8499

Epoch 36/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.363  
2 - accuracy: 0.8514

Epoch 37/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.361  
4 - accuracy: 0.8506

Epoch 38/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.360  
7 - accuracy: 0.8519

Epoch 39/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.361  
5 - accuracy: 0.8491

Epoch 40/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.359  
9 - accuracy: 0.8507

Epoch 41/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.360  
0 - accuracy: 0.8516

Epoch 42/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.359  
1 - accuracy: 0.8526

Epoch 43/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.358  
1 - accuracy: 0.8502

Epoch 44/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.357  
7 - accuracy: 0.8541

Epoch 45/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.357  
8 - accuracy: 0.8512

Epoch 46/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.357  
2 - accuracy: 0.8504

Epoch 47/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.356  
9 - accuracy: 0.8524

Epoch 48/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.357  
1 - accuracy: 0.8524

Epoch 49/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.355  
7 - accuracy: 0.8526

Epoch 50/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.356  
5 - accuracy: 0.8529

Epoch 51/500

```
6030/6030 [=====] - 1s 185us/sample - loss: 0.355
5 - accuracy: 0.8514 - loss: 0.3587 - accuracy:
Epoch 52/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.354
9 - accuracy: 0.8539
Epoch 53/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.355
3 - accuracy: 0.8517
Epoch 54/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.354
4 - accuracy: 0.8546
Epoch 55/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.354
4 - accuracy: 0.8536
Epoch 56/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.353
9 - accuracy: 0.8559
Epoch 57/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.354
0 - accuracy: 0.8542
Epoch 58/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.353
0 - accuracy: 0.8537
Epoch 59/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.353
4 - accuracy: 0.8541
Epoch 60/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.352
8 - accuracy: 0.8551
Epoch 61/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.352
6 - accuracy: 0.8539
Epoch 62/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.353
2 - accuracy: 0.8532
Epoch 63/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.352
2 - accuracy: 0.8556
Epoch 64/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.351
6 - accuracy: 0.8547
Epoch 65/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.351
4 - accuracy: 0.8556
Epoch 66/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.350
9 - accuracy: 0.8537 - loss: 0
Epoch 67/500
6030/6030 [=====] - 1s 232us/sample - loss: 0.351
0 - accuracy: 0.8557
Epoch 68/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.350
6 - accuracy: 0.8574
Epoch 69/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.350
0 - accuracy: 0.8557
Epoch 70/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.350
4 - accuracy: 0.8547
Epoch 71/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.349
```



```
1 - accuracy: 0.8566
Epoch 72/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.349
1 - accuracy: 0.8572
Epoch 73/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.348
8 - accuracy: 0.8552
Epoch 74/500
6030/6030 [=====] - 2s 251us/sample - loss: 0.348
7 - accuracy: 0.8541
Epoch 75/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.348
6 - accuracy: 0.8562
Epoch 76/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.348
2 - accuracy: 0.8547
Epoch 77/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.347
6 - accuracy: 0.8577
Epoch 78/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.347
9 - accuracy: 0.8551
Epoch 79/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.347
2 - accuracy: 0.8564
Epoch 80/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.347
3 - accuracy: 0.8557
Epoch 81/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.347
2 - accuracy: 0.8546
Epoch 82/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.347
0 - accuracy: 0.8557
Epoch 83/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.346
0 - accuracy: 0.8566
Epoch 84/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.346
0 - accuracy: 0.8562
Epoch 85/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.346
1 - accuracy: 0.8592
Epoch 86/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.346
2 - accuracy: 0.8589
Epoch 87/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.345
5 - accuracy: 0.8572
Epoch 88/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.345
3 - accuracy: 0.8556
Epoch 89/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.345
4 - accuracy: 0.8566
Epoch 90/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.345
6 - accuracy: 0.8570
Epoch 91/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.345
2 - accuracy: 0.8579
```

```
Epoch 92/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.345
6 - accuracy: 0.8561
Epoch 93/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.345
0 - accuracy: 0.8564
Epoch 94/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.344
3 - accuracy: 0.8574
Epoch 95/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.345
0 - accuracy: 0.8569
Epoch 96/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.344
2 - accuracy: 0.8561
Epoch 97/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.343
9 - accuracy: 0.8570
Epoch 98/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
9 - accuracy: 0.8562 - los
Epoch 99/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.343
8 - accuracy: 0.8544
Epoch 100/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.344
3 - accuracy: 0.8554
Epoch 101/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.343
7 - accuracy: 0.8531
Epoch 102/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.344
6 - accuracy: 0.8579
Epoch 103/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.342
9 - accuracy: 0.8582
Epoch 104/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.343
2 - accuracy: 0.8554
Epoch 105/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.343
2 - accuracy: 0.8569
Epoch 106/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.343
1 - accuracy: 0.8569
Epoch 107/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.342
7 - accuracy: 0.8575
Epoch 108/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.342
8 - accuracy: 0.8552
Epoch 109/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.343
0 - accuracy: 0.8564
Epoch 110/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.341
9 - accuracy: 0.8592
Epoch 111/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.343
0 - accuracy: 0.8567
Epoch 112/500
```

```
6030/6030 [=====] - 1s 178us/sample - loss: 0.342
5 - accuracy: 0.8559
Epoch 113/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.341
2 - accuracy: 0.8584
Epoch 114/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.342
0 - accuracy: 0.8554
Epoch 115/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.342
6 - accuracy: 0.8577
Epoch 116/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.342
1 - accuracy: 0.8577 - loss: 0.3344 - accu
Epoch 117/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.342
2 - accuracy: 0.8566
Epoch 118/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.340
8 - accuracy: 0.8577
Epoch 119/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.340
9 - accuracy: 0.8589
Epoch 120/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.341
2 - accuracy: 0.8551
Epoch 121/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.341
7 - accuracy: 0.8569
Epoch 122/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.341
8 - accuracy: 0.8554
Epoch 123/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.342
2 - accuracy: 0.8569
Epoch 124/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.341
2 - accuracy: 0.8561
Epoch 125/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.342
3 - accuracy: 0.8552
Epoch 126/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.341
0 - accuracy: 0.8564
Epoch 127/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.340
3 - accuracy: 0.8582
Epoch 128/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.341
9 - accuracy: 0.8566
Epoch 129/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.341
3 - accuracy: 0.8561
Epoch 130/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.340
3 - accuracy: 0.8579
Epoch 131/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.341
3 - accuracy: 0.8557
Epoch 132/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.340
```

```
8 - accuracy: 0.8569
Epoch 133/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.340
3 - accuracy: 0.8585
Epoch 134/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.340
5 - accuracy: 0.8574 - loss: 0.3432 - accuracy: 0.85
Epoch 135/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.341
2 - accuracy: 0.8564
Epoch 136/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.340
2 - accuracy: 0.8554
Epoch 137/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.340
0 - accuracy: 0.8600
Epoch 138/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.340
7 - accuracy: 0.8584
Epoch 139/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.341
2 - accuracy: 0.8556
Epoch 140/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.341
8 - accuracy: 0.8551
Epoch 141/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.340
3 - accuracy: 0.8569
Epoch 142/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.339
7 - accuracy: 0.8597
Epoch 143/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.340
0 - accuracy: 0.8557
Epoch 144/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.340
3 - accuracy: 0.8557
Epoch 145/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.341
2 - accuracy: 0.8552
Epoch 146/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.340
6 - accuracy: 0.8579
Epoch 147/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.340
2 - accuracy: 0.8592
Epoch 148/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.340
1 - accuracy: 0.8569
Epoch 149/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.341
0 - accuracy: 0.8577
Epoch 150/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.339
1 - accuracy: 0.8575
Epoch 151/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.340
9 - accuracy: 0.8579
Epoch 152/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.340
6 - accuracy: 0.8562
```

Epoch 153/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.340  
1 - accuracy: 0.8546  
Epoch 154/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.339  
9 - accuracy: 0.8547  
Epoch 155/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.339  
6 - accuracy: 0.8574  
Epoch 156/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.341  
1 - accuracy: 0.8547  
Epoch 157/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.340  
6 - accuracy: 0.8590  
Epoch 158/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.339  
9 - accuracy: 0.8592  
Epoch 159/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.340  
1 - accuracy: 0.8582  
Epoch 160/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.339  
1 - accuracy: 0.8580  
Epoch 161/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.339  
8 - accuracy: 0.8561  
Epoch 162/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.340  
6 - accuracy: 0.8579  
Epoch 163/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.339  
2 - accuracy: 0.8569  
Epoch 164/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.340  
0 - accuracy: 0.8590  
Epoch 165/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.340  
0 - accuracy: 0.8577  
Epoch 166/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.339  
8 - accuracy: 0.8567  
Epoch 167/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.339  
3 - accuracy: 0.8582  
Epoch 168/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.339  
7 - accuracy: 0.8584  
Epoch 169/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.339  
4 - accuracy: 0.8582  
Epoch 170/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.340  
1 - accuracy: 0.8575  
Epoch 171/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.338  
7 - accuracy: 0.8594  
Epoch 172/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.339  
1 - accuracy: 0.8574  
Epoch 173/500

```
6030/6030 [=====] - 1s 183us/sample - loss: 0.339
0 - accuracy: 0.8572
Epoch 174/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.339
6 - accuracy: 0.8584
Epoch 175/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.338
9 - accuracy: 0.8589
Epoch 176/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.340
5 - accuracy: 0.8579
Epoch 177/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.338
5 - accuracy: 0.8600
Epoch 178/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.338
6 - accuracy: 0.8572
Epoch 179/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.338
8 - accuracy: 0.8556
Epoch 180/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.338
5 - accuracy: 0.8579
Epoch 181/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.338
6 - accuracy: 0.8562
Epoch 182/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.339
7 - accuracy: 0.8572
Epoch 183/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.338
9 - accuracy: 0.8570
Epoch 184/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.339
3 - accuracy: 0.8551
Epoch 185/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.339
1 - accuracy: 0.8574
Epoch 186/500
6030/6030 [=====] - 1s 233us/sample - loss: 0.339
4 - accuracy: 0.8572
Epoch 187/500
6030/6030 [=====] - 2s 253us/sample - loss: 0.338
2 - accuracy: 0.8561
Epoch 188/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.338
9 - accuracy: 0.8584
Epoch 189/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.338
5 - accuracy: 0.8589
Epoch 190/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.338
3 - accuracy: 0.8594
Epoch 191/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.338
6 - accuracy: 0.8624
Epoch 192/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.338
9 - accuracy: 0.8582
Epoch 193/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.339
```

```
0 - accuracy: 0.8590
Epoch 194/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.339
5 - accuracy: 0.8575 - loss:
Epoch 195/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.338
3 - accuracy: 0.8592
Epoch 196/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.338
5 - accuracy: 0.8589
Epoch 197/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.338
4 - accuracy: 0.8574
Epoch 198/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.337
4 - accuracy: 0.8572
Epoch 199/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.339
1 - accuracy: 0.8579
Epoch 200/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.338
7 - accuracy: 0.8564
Epoch 201/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.339
6 - accuracy: 0.8577
Epoch 202/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.338
9 - accuracy: 0.8575
Epoch 203/500
6030/6030 [=====] - 1s 233us/sample - loss: 0.337
9 - accuracy: 0.8597
Epoch 204/500
6030/6030 [=====] - 1s 248us/sample - loss: 0.338
3 - accuracy: 0.8595
Epoch 205/500
6030/6030 [=====] - 1s 232us/sample - loss: 0.337
9 - accuracy: 0.8579
Epoch 206/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.338
5 - accuracy: 0.8582
Epoch 207/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.337
9 - accuracy: 0.8577
Epoch 208/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.338
2 - accuracy: 0.8589
Epoch 209/500
6030/6030 [=====] - ETA: 0s - loss: 0.3392 - accuracy: 0.85 - 1s 205us/sample - loss: 0.3389 - accuracy: 0.8562
Epoch 210/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.339
4 - accuracy: 0.8575
Epoch 211/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.338
9 - accuracy: 0.8585
Epoch 212/500
6030/6030 [=====] - 2s 265us/sample - loss: 0.339
1 - accuracy: 0.8585 - loss: 0.3426 - ac
Epoch 213/500
6030/6030 [=====] - 2s 304us/sample - loss: 0.338
9 - accuracy: 0.8582
```

Epoch 214/500  
6030/6030 [=====] - 1s 223us/sample - loss: 0.338  
3 - accuracy: 0.8597  
Epoch 215/500  
6030/6030 [=====] - 1s 231us/sample - loss: 0.338  
0 - accuracy: 0.8567  
Epoch 216/500  
6030/6030 [=====] - 1s 239us/sample - loss: 0.339  
1 - accuracy: 0.8597  
Epoch 217/500  
6030/6030 [=====] - 1s 217us/sample - loss: 0.339  
1 - accuracy: 0.8574  
Epoch 218/500  
6030/6030 [=====] - 1s 211us/sample - loss: 0.339  
0 - accuracy: 0.8574  
Epoch 219/500  
6030/6030 [=====] - 2s 251us/sample - loss: 0.338  
0 - accuracy: 0.8582  
Epoch 220/500  
6030/6030 [=====] - 2s 345us/sample - loss: 0.338  
7 - accuracy: 0.8579  
Epoch 221/500  
6030/6030 [=====] - 2s 268us/sample - loss: 0.338  
5 - accuracy: 0.8587  
Epoch 222/500  
6030/6030 [=====] - 2s 249us/sample - loss: 0.338  
0 - accuracy: 0.8594  
Epoch 223/500  
6030/6030 [=====] - 1s 240us/sample - loss: 0.338  
2 - accuracy: 0.8577  
Epoch 224/500  
6030/6030 [=====] - 1s 222us/sample - loss: 0.338  
1 - accuracy: 0.8557  
Epoch 225/500  
6030/6030 [=====] - 1s 222us/sample - loss: 0.338  
6 - accuracy: 0.8592  
Epoch 226/500  
6030/6030 [=====] - 1s 224us/sample - loss: 0.338  
5 - accuracy: 0.8582  
Epoch 227/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.339  
9 - accuracy: 0.8582  
Epoch 228/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.339  
1 - accuracy: 0.8577  
Epoch 229/500  
6030/6030 [=====] - 1s 217us/sample - loss: 0.338  
6 - accuracy: 0.8587  
Epoch 230/500  
6030/6030 [=====] - 1s 233us/sample - loss: 0.339  
5 - accuracy: 0.8584  
Epoch 231/500  
6030/6030 [=====] - 2s 298us/sample - loss: 0.338  
5 - accuracy: 0.8597  
Epoch 232/500  
6030/6030 [=====] - 2s 265us/sample - loss: 0.338  
5 - accuracy: 0.8600  
Epoch 233/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.338  
0 - accuracy: 0.8587  
Epoch 234/500



```
6030/6030 [=====] - 1s 238us/sample - loss: 0.338
5 - accuracy: 0.8600
Epoch 235/500
6030/6030 [=====] - 2s 276us/sample - loss: 0.338
0 - accuracy: 0.8572
Epoch 236/500
6030/6030 [=====] - 2s 329us/sample - loss: 0.338
7 - accuracy: 0.8575
Epoch 237/500
6030/6030 [=====] - 2s 283us/sample - loss: 0.338
0 - accuracy: 0.8575
Epoch 238/500
6030/6030 [=====] - 2s 338us/sample - loss: 0.338
3 - accuracy: 0.8567
Epoch 239/500
6030/6030 [=====] - 2s 279us/sample - loss: 0.336
9 - accuracy: 0.8585
Epoch 240/500
6030/6030 [=====] - 2s 266us/sample - loss: 0.338
1 - accuracy: 0.8585
Epoch 241/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.338
2 - accuracy: 0.8589
Epoch 242/500
6030/6030 [=====] - 1s 244us/sample - loss: 0.337
8 - accuracy: 0.8577
Epoch 243/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.338
2 - accuracy: 0.8582
Epoch 244/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.337
8 - accuracy: 0.8572
Epoch 245/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.338
0 - accuracy: 0.8579 - loss: 0
Epoch 246/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.338
0 - accuracy: 0.8595
Epoch 247/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.338
6 - accuracy: 0.8590
Epoch 248/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.338
4 - accuracy: 0.8589
Epoch 249/500
6030/6030 [=====] - 2s 289us/sample - loss: 0.338
3 - accuracy: 0.8594
Epoch 250/500
6030/6030 [=====] - 1s 247us/sample - loss: 0.338
1 - accuracy: 0.8607
Epoch 251/500
6030/6030 [=====] - 2s 278us/sample - loss: 0.338
4 - accuracy: 0.8594
Epoch 252/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.339
1 - accuracy: 0.8587
Epoch 253/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.338
1 - accuracy: 0.8582
Epoch 254/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.337
```

```
9 - accuracy: 0.8579
Epoch 255/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.337
5 - accuracy: 0.8589
Epoch 256/500
6030/6030 [=====] - 2s 274us/sample - loss: 0.338
8 - accuracy: 0.8579
Epoch 257/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.338
1 - accuracy: 0.8590
Epoch 258/500
6030/6030 [=====] - 1s 233us/sample - loss: 0.337
4 - accuracy: 0.8589
Epoch 259/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.339
2 - accuracy: 0.8574
Epoch 260/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.338
0 - accuracy: 0.8575
Epoch 261/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.337
7 - accuracy: 0.8587
Epoch 262/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.338
4 - accuracy: 0.8627
Epoch 263/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.338
9 - accuracy: 0.8554
Epoch 264/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.338
0 - accuracy: 0.8604
Epoch 265/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.337
4 - accuracy: 0.8594
Epoch 266/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.339
1 - accuracy: 0.8572
Epoch 267/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.338
1 - accuracy: 0.8590
Epoch 268/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.337
8 - accuracy: 0.8592
Epoch 269/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.337
4 - accuracy: 0.8570
Epoch 270/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.337
8 - accuracy: 0.8600
Epoch 271/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.337
5 - accuracy: 0.8580
Epoch 272/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.337
9 - accuracy: 0.8567
Epoch 273/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.338
2 - accuracy: 0.8575
Epoch 274/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.338
3 - accuracy: 0.8556
```

Epoch 275/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.338  
1 - accuracy: 0.8580  
Epoch 276/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.338  
2 - accuracy: 0.8590  
Epoch 277/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.338  
2 - accuracy: 0.8595  
Epoch 278/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.338  
4 - accuracy: 0.8595  
Epoch 279/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.338  
7 - accuracy: 0.8575  
Epoch 280/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.337  
6 - accuracy: 0.8589  
Epoch 281/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.338  
1 - accuracy: 0.8582  
Epoch 282/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.337  
7 - accuracy: 0.8597  
Epoch 283/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.338  
2 - accuracy: 0.8585  
Epoch 284/500  
6030/6030 [=====] - 1s 168us/sample - loss: 0.337  
7 - accuracy: 0.8600  
Epoch 285/500  
6030/6030 [=====] - 1s 168us/sample - loss: 0.337  
5 - accuracy: 0.8595  
Epoch 286/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.338  
3 - accuracy: 0.8590  
Epoch 287/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.338  
1 - accuracy: 0.8575  
Epoch 288/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.338  
5 - accuracy: 0.8575  
Epoch 289/500  
6030/6030 [=====] - 1s 221us/sample - loss: 0.337  
8 - accuracy: 0.8597  
Epoch 290/500  
6030/6030 [=====] - 2s 298us/sample - loss: 0.337  
5 - accuracy: 0.8579 - loss: 0.338  
Epoch 291/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.338  
7 - accuracy: 0.8587  
Epoch 292/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.337  
3 - accuracy: 0.8587  
Epoch 293/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.338  
1 - accuracy: 0.8585  
Epoch 294/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.337  
2 - accuracy: 0.8575  
Epoch 295/500

```
6030/6030 [=====] - 1s 170us/sample - loss: 0.337
6 - accuracy: 0.8575
Epoch 296/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.338
7 - accuracy: 0.8584
Epoch 297/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.337
7 - accuracy: 0.8597
Epoch 298/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.338
8 - accuracy: 0.8582
Epoch 299/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.338
2 - accuracy: 0.8592
Epoch 300/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.337
7 - accuracy: 0.8589
Epoch 301/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.337
4 - accuracy: 0.8594
Epoch 302/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.337
8 - accuracy: 0.8584
Epoch 303/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.338
7 - accuracy: 0.8587
Epoch 304/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.338
7 - accuracy: 0.8572
Epoch 305/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.338
3 - accuracy: 0.8579
Epoch 306/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.337
6 - accuracy: 0.8575
Epoch 307/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.337
8 - accuracy: 0.8600
Epoch 308/500
6030/6030 [=====] - 2s 306us/sample - loss: 0.338
0 - accuracy: 0.8575
Epoch 309/500
6030/6030 [=====] - 2s 277us/sample - loss: 0.338
3 - accuracy: 0.8597
Epoch 310/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.337
6 - accuracy: 0.8592
Epoch 311/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.338
3 - accuracy: 0.8574
Epoch 312/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.338
3 - accuracy: 0.8564
Epoch 313/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.338
5 - accuracy: 0.8592
Epoch 314/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.338
7 - accuracy: 0.8587
Epoch 315/500
6030/6030 [=====] - 2s 276us/sample - loss: 0.337
```

```
2 - accuracy: 0.8600
Epoch 316/500
6030/6030 [=====] - 2s 266us/sample - loss: 0.338
5 - accuracy: 0.8587
Epoch 317/500
6030/6030 [=====] - 2s 280us/sample - loss: 0.338
3 - accuracy: 0.8597
Epoch 318/500
6030/6030 [=====] - 2s 249us/sample - loss: 0.337
9 - accuracy: 0.8587
Epoch 319/500
6030/6030 [=====] - 2s 251us/sample - loss: 0.336
7 - accuracy: 0.8585
Epoch 320/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.338
4 - accuracy: 0.8577
Epoch 321/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.337
9 - accuracy: 0.8570
Epoch 322/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.337
7 - accuracy: 0.8602
Epoch 323/500
6030/6030 [=====] - 1s 246us/sample - loss: 0.338
0 - accuracy: 0.8600 - loss: 0.3366 - accuracy: - ETA: 0s - loss: 0.3322
- ac
Epoch 324/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.337
3 - accuracy: 0.8587
Epoch 325/500
6030/6030 [=====] - 2s 258us/sample - loss: 0.337
6 - accuracy: 0.8599
Epoch 326/500
6030/6030 [=====] - 2s 345us/sample - loss: 0.337
2 - accuracy: 0.8580
Epoch 327/500
6030/6030 [=====] - 2s 308us/sample - loss: 0.337
2 - accuracy: 0.8574
Epoch 328/500
6030/6030 [=====] - 2s 324us/sample - loss: 0.337
7 - accuracy: 0.8609
Epoch 329/500
6030/6030 [=====] - 2s 310us/sample - loss: 0.338
9 - accuracy: 0.8587
Epoch 330/500
6030/6030 [=====] - 3s 459us/sample - loss: 0.337
8 - accuracy: 0.8600
Epoch 331/500
6030/6030 [=====] - 2s 293us/sample - loss: 0.338
2 - accuracy: 0.8572
Epoch 332/500
6030/6030 [=====] - 1s 248us/sample - loss: 0.337
8 - accuracy: 0.8605
Epoch 333/500
6030/6030 [=====] - 2s 290us/sample - loss: 0.338
1 - accuracy: 0.8579
Epoch 334/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.338
5 - accuracy: 0.8562
Epoch 335/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.338
```

```
2 - accuracy: 0.8594
Epoch 336/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.338
4 - accuracy: 0.8602
Epoch 337/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.337
9 - accuracy: 0.8589 - loss: 0.3380 - ac
Epoch 338/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.337
8 - accuracy: 0.8607
Epoch 339/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.337
5 - accuracy: 0.8582
Epoch 340/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.338
5 - accuracy: 0.8597
Epoch 341/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.337
9 - accuracy: 0.8570
Epoch 342/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.339
8 - accuracy: 0.8572
Epoch 343/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.337
3 - accuracy: 0.8605
Epoch 344/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.337
7 - accuracy: 0.8584
Epoch 345/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.339
8 - accuracy: 0.8582
Epoch 346/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.338
2 - accuracy: 0.8587
Epoch 347/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.338
2 - accuracy: 0.8585
Epoch 348/500
6030/6030 [=====] - 1s 232us/sample - loss: 0.337
8 - accuracy: 0.8610
Epoch 349/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.337
4 - accuracy: 0.8585
Epoch 350/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.337
9 - accuracy: 0.8572
Epoch 351/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.337
4 - accuracy: 0.8582
Epoch 352/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.338
0 - accuracy: 0.8572
Epoch 353/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.338
2 - accuracy: 0.8566
Epoch 354/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.338
0 - accuracy: 0.8587
Epoch 355/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.337
5 - accuracy: 0.8566
```

Epoch 356/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.338  
1 - accuracy: 0.8590  
Epoch 357/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.338  
2 - accuracy: 0.8575  
Epoch 358/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.337  
9 - accuracy: 0.8594  
Epoch 359/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.337  
4 - accuracy: 0.8607  
Epoch 360/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.338  
5 - accuracy: 0.8595  
Epoch 361/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.339  
0 - accuracy: 0.8585  
Epoch 362/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.339  
0 - accuracy: 0.8595  
Epoch 363/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.336  
0 - accuracy: 0.8584  
Epoch 364/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.338  
3 - accuracy: 0.8609  
Epoch 365/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.337  
8 - accuracy: 0.8589  
Epoch 366/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.337  
6 - accuracy: 0.8567  
Epoch 367/500  
6030/6030 [=====] - 1s 213us/sample - loss: 0.338  
0 - accuracy: 0.8595  
Epoch 368/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.337  
6 - accuracy: 0.8566  
Epoch 369/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.338  
3 - accuracy: 0.8597  
Epoch 370/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.337  
3 - accuracy: 0.8595  
Epoch 371/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.337  
6 - accuracy: 0.8595  
Epoch 372/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.336  
9 - accuracy: 0.8585  
Epoch 373/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.338  
0 - accuracy: 0.8597  
Epoch 374/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.337  
7 - accuracy: 0.8594  
Epoch 375/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.338  
1 - accuracy: 0.8590  
Epoch 376/500

```
6030/6030 [=====] - 1s 194us/sample - loss: 0.336
9 - accuracy: 0.8600
Epoch 377/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.338
1 - accuracy: 0.8585
Epoch 378/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.337
3 - accuracy: 0.8625
Epoch 379/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.338
2 - accuracy: 0.8585
Epoch 380/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.337
9 - accuracy: 0.8587
Epoch 381/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.338
5 - accuracy: 0.8585
Epoch 382/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.337
6 - accuracy: 0.8570
Epoch 383/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.337
2 - accuracy: 0.8589
Epoch 384/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.337
6 - accuracy: 0.8587
Epoch 385/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.338
1 - accuracy: 0.8585
Epoch 386/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.338
5 - accuracy: 0.8585
Epoch 387/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.337
1 - accuracy: 0.8604
Epoch 388/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.338
8 - accuracy: 0.8582
Epoch 389/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.336
9 - accuracy: 0.8595
Epoch 390/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.337
3 - accuracy: 0.8589
Epoch 391/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.337
5 - accuracy: 0.8582
Epoch 392/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.337
6 - accuracy: 0.8569
Epoch 393/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.337
4 - accuracy: 0.8605
Epoch 394/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.337
5 - accuracy: 0.8585
Epoch 395/500
6030/6030 [=====] - 2s 255us/sample - loss: 0.338
0 - accuracy: 0.8574 - loss: 0.3410 - accuracy: 0.
Epoch 396/500
6030/6030 [=====] - 2s 266us/sample - loss: 0.337
```



```
7 - accuracy: 0.8587
Epoch 397/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.338
6 - accuracy: 0.8584
Epoch 398/500
6030/6030 [=====] - ETA: 0s - loss: 0.3387 - accuracy: 0.86 - 1s 198us/sample - loss: 0.3374 - accuracy: 0.8609
Epoch 399/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.338
0 - accuracy: 0.8585
Epoch 400/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.338
0 - accuracy: 0.8589
Epoch 401/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.337
6 - accuracy: 0.8595
Epoch 402/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.338
2 - accuracy: 0.8567
Epoch 403/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.337
4 - accuracy: 0.8587
Epoch 404/500
6030/6030 [=====] - 1s 248us/sample - loss: 0.336
8 - accuracy: 0.8600
Epoch 405/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.338
5 - accuracy: 0.8570
Epoch 406/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.338
2 - accuracy: 0.8574
Epoch 407/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.337
1 - accuracy: 0.8602
Epoch 408/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.338
6 - accuracy: 0.8574
Epoch 409/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.337
5 - accuracy: 0.8574
Epoch 410/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.337
9 - accuracy: 0.8582
Epoch 411/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.337
7 - accuracy: 0.8614
Epoch 412/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.337
5 - accuracy: 0.8607
Epoch 413/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.338
5 - accuracy: 0.8592
Epoch 414/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.337
8 - accuracy: 0.8585
Epoch 415/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.336
9 - accuracy: 0.8561
Epoch 416/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.337
5 - accuracy: 0.8589
```

Epoch 417/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.338  
6 - accuracy: 0.8580  
Epoch 418/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.337  
5 - accuracy: 0.8620  
Epoch 419/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.337  
7 - accuracy: 0.8599  
Epoch 420/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.337  
3 - accuracy: 0.8592  
Epoch 421/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.337  
6 - accuracy: 0.8595  
Epoch 422/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.337  
8 - accuracy: 0.8600  
Epoch 423/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.337  
2 - accuracy: 0.8619  
Epoch 424/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.337  
6 - accuracy: 0.8610  
Epoch 425/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.338  
3 - accuracy: 0.8590  
Epoch 426/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.338  
1 - accuracy: 0.8614  
Epoch 427/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.337  
9 - accuracy: 0.8587  
Epoch 428/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.338  
1 - accuracy: 0.8564  
Epoch 429/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.337  
0 - accuracy: 0.8605  
Epoch 430/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.337  
9 - accuracy: 0.8599  
Epoch 431/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.337  
2 - accuracy: 0.8597  
Epoch 432/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.337  
8 - accuracy: 0.8599  
Epoch 433/500  
6030/6030 [=====] - 1s 207us/sample - loss: 0.337  
3 - accuracy: 0.8614  
Epoch 434/500  
6030/6030 [=====] - 2s 259us/sample - loss: 0.337  
6 - accuracy: 0.8602  
Epoch 435/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.337  
5 - accuracy: 0.8599  
Epoch 436/500  
6030/6030 [=====] - 2s 261us/sample - loss: 0.338  
2 - accuracy: 0.8585  
Epoch 437/500

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6030/6030 [=====] - 2s 259us/sample - loss: 0.337
7 - accuracy: 0.8600
Epoch 438/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.337
4 - accuracy: 0.8612
Epoch 439/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.338
4 - accuracy: 0.8559
Epoch 440/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.337
5 - accuracy: 0.8597
Epoch 441/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.338
4 - accuracy: 0.8582
Epoch 442/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.337
1 - accuracy: 0.8587
Epoch 443/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.337
8 - accuracy: 0.8597
Epoch 444/500
6030/6030 [=====] - ETA: 0s - loss: 0.3379 - accuracy: 0.85 - 1s 195us/sample - loss: 0.3378 - accuracy: 0.8579
Epoch 445/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.337
5 - accuracy: 0.8582
Epoch 446/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.337
7 - accuracy: 0.8577
Epoch 447/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.337
6 - accuracy: 0.8602
Epoch 448/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.337
5 - accuracy: 0.8585
Epoch 449/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.337
0 - accuracy: 0.8584
Epoch 450/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.337
6 - accuracy: 0.8585
Epoch 451/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.337
9 - accuracy: 0.8607
Epoch 452/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.336
8 - accuracy: 0.8600
Epoch 453/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.338
0 - accuracy: 0.8580
Epoch 454/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.337
6 - accuracy: 0.8582
Epoch 455/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.338
3 - accuracy: 0.8599
Epoch 456/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.337
3 - accuracy: 0.8620
Epoch 457/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.337
```

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4 - accuracy: 0.8604
Epoch 458/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.338
2 - accuracy: 0.8597
Epoch 459/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.337
2 - accuracy: 0.8579
Epoch 460/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.337
0 - accuracy: 0.8607
Epoch 461/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.336
9 - accuracy: 0.8595
Epoch 462/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.338
0 - accuracy: 0.8582
Epoch 463/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.337
7 - accuracy: 0.8590
Epoch 464/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.337
6 - accuracy: 0.8580
Epoch 465/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.337
4 - accuracy: 0.8585
Epoch 466/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.337
4 - accuracy: 0.8572
Epoch 467/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.337
3 - accuracy: 0.8585
Epoch 468/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.337
2 - accuracy: 0.8574
Epoch 469/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.337
9 - accuracy: 0.8587
Epoch 470/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.337
4 - accuracy: 0.8604
Epoch 471/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.338
2 - accuracy: 0.8554
Epoch 472/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.337
3 - accuracy: 0.8595
Epoch 473/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.336
7 - accuracy: 0.8590
Epoch 474/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.336
9 - accuracy: 0.8610
Epoch 475/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.337
8 - accuracy: 0.8584
Epoch 476/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.337
5 - accuracy: 0.8587
Epoch 477/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.337
2 - accuracy: 0.8597
```

Epoch 478/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.337  
4 - accuracy: 0.8600  
Epoch 479/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.338  
3 - accuracy: 0.8570  
Epoch 480/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.337  
6 - accuracy: 0.8594  
Epoch 481/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.336  
7 - accuracy: 0.8604  
Epoch 482/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.338  
0 - accuracy: 0.8592  
Epoch 483/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.337  
5 - accuracy: 0.8600  
Epoch 484/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.337  
4 - accuracy: 0.8605  
Epoch 485/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.337  
1 - accuracy: 0.8584  
Epoch 486/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.339  
0 - accuracy: 0.8602  
Epoch 487/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.336  
9 - accuracy: 0.8592  
Epoch 488/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.337  
5 - accuracy: 0.8610  
Epoch 489/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.337  
0 - accuracy: 0.8584  
Epoch 490/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.337  
4 - accuracy: 0.8580  
Epoch 491/500  
6030/6030 [=====] - 1s 212us/sample - loss: 0.338  
6 - accuracy: 0.8580  
Epoch 492/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.337  
3 - accuracy: 0.8577  
Epoch 493/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.337  
2 - accuracy: 0.8589  
Epoch 494/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.337  
3 - accuracy: 0.8592  
Epoch 495/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.337  
5 - accuracy: 0.8575  
Epoch 496/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.338  
0 - accuracy: 0.8599  
Epoch 497/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.337  
0 - accuracy: 0.8602  
Epoch 498/500

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6030/6030 [=====] - 1s 187us/sample - loss: 0.337
6 - accuracy: 0.8590
Epoch 499/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.336
5 - accuracy: 0.8595
Epoch 500/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.337
9 - accuracy: 0.8570
Train on 6030 samples
Epoch 1/500
6030/6030 [=====] - 2s 262us/sample - loss: 0.598
5 - accuracy: 0.7854
Epoch 2/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.452
2 - accuracy: 0.7877
Epoch 3/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.445
1 - accuracy: 0.7877
Epoch 4/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.442
1 - accuracy: 0.7877
Epoch 5/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.440
4 - accuracy: 0.7877
Epoch 6/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.438
6 - accuracy: 0.7877
Epoch 7/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.436
7 - accuracy: 0.7877
Epoch 8/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.434
4 - accuracy: 0.7950
Epoch 9/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.432
4 - accuracy: 0.8119
Epoch 10/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.430
9 - accuracy: 0.8129
Epoch 11/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.429
8 - accuracy: 0.8169
Epoch 12/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.428
1 - accuracy: 0.8196
Epoch 13/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.426
7 - accuracy: 0.8206
Epoch 14/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.425
8 - accuracy: 0.8221
Epoch 15/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.424
9 - accuracy: 0.8257
Epoch 16/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.423
9 - accuracy: 0.8255
Epoch 17/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.422
9 - accuracy: 0.8259
Epoch 18/500
```

```
6030/6030 [=====] - 1s 184us/sample - loss: 0.422
2 - accuracy: 0.8272
Epoch 19/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.421
4 - accuracy: 0.8270
Epoch 20/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.420
9 - accuracy: 0.8282
Epoch 21/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.420
3 - accuracy: 0.8284
Epoch 22/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.419
3 - accuracy: 0.8308
Epoch 23/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.417
7 - accuracy: 0.8289
Epoch 24/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.416
6 - accuracy: 0.8312
Epoch 25/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.415
4 - accuracy: 0.8294
Epoch 26/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.414
4 - accuracy: 0.8312
Epoch 27/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.412
9 - accuracy: 0.8313
Epoch 28/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.412
8 - accuracy: 0.8305
Epoch 29/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.411
5 - accuracy: 0.8342
Epoch 30/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.411
1 - accuracy: 0.8299
Epoch 31/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.410
6 - accuracy: 0.8323
Epoch 32/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.410
1 - accuracy: 0.8310
Epoch 33/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.410
0 - accuracy: 0.8328
Epoch 34/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.409
5 - accuracy: 0.8322
Epoch 35/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.409
1 - accuracy: 0.8332
Epoch 36/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.408
2 - accuracy: 0.8315
Epoch 37/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.408
1 - accuracy: 0.8317
Epoch 38/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.408
```

```
0 - accuracy: 0.8315
Epoch 39/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.407
4 - accuracy: 0.8308
Epoch 40/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.407
3 - accuracy: 0.8312
Epoch 41/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.406
8 - accuracy: 0.8315
Epoch 42/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.406
6 - accuracy: 0.8333
Epoch 43/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.406
3 - accuracy: 0.8325
Epoch 44/500
6030/6030 [=====] - ETA: 0s - loss: 0.4057 - accuracy: 0.83 - 1s 217us/sample - loss: 0.4060 - accuracy: 0.8313
Epoch 45/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.405
4 - accuracy: 0.8323
Epoch 46/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.405
4 - accuracy: 0.8332
Epoch 47/500
6030/6030 [=====] - 1s 240us/sample - loss: 0.405
3 - accuracy: 0.8330
Epoch 48/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.405
1 - accuracy: 0.8323
Epoch 49/500
6030/6030 [=====] - 1s 248us/sample - loss: 0.404
8 - accuracy: 0.8347
Epoch 50/500
6030/6030 [=====] - 2s 279us/sample - loss: 0.404
7 - accuracy: 0.8322
Epoch 51/500
6030/6030 [=====] - 1s 238us/sample - loss: 0.404
8 - accuracy: 0.8317
Epoch 52/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.404
0 - accuracy: 0.8330
Epoch 53/500
6030/6030 [=====] - 2s 257us/sample - loss: 0.404
2 - accuracy: 0.8328
Epoch 54/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.403
6 - accuracy: 0.8338
Epoch 55/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.403
3 - accuracy: 0.8328
Epoch 56/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.403
3 - accuracy: 0.8327
Epoch 57/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.403
8 - accuracy: 0.8332
Epoch 58/500
6030/6030 [=====] - 1s 231us/sample - loss: 0.403
0 - accuracy: 0.8340
```



Epoch 59/500  
6030/6030 [=====] - 2s 280us/sample - loss: 0.403  
3 - accuracy: 0.8325  
Epoch 60/500  
6030/6030 [=====] - 1s 247us/sample - loss: 0.402  
5 - accuracy: 0.8343  
Epoch 61/500  
6030/6030 [=====] - 1s 227us/sample - loss: 0.402  
8 - accuracy: 0.8332  
Epoch 62/500  
6030/6030 [=====] - 2s 249us/sample - loss: 0.402  
3 - accuracy: 0.8337  
Epoch 63/500  
6030/6030 [=====] - 1s 223us/sample - loss: 0.402  
5 - accuracy: 0.8328  
Epoch 64/500  
6030/6030 [=====] - 1s 225us/sample - loss: 0.402  
7 - accuracy: 0.8313  
Epoch 65/500  
6030/6030 [=====] - 1s 226us/sample - loss: 0.402  
1 - accuracy: 0.8343  
Epoch 66/500  
6030/6030 [=====] - 2s 252us/sample - loss: 0.402  
4 - accuracy: 0.8325  
Epoch 67/500  
6030/6030 [=====] - 1s 222us/sample - loss: 0.401  
9 - accuracy: 0.8337  
Epoch 68/500  
6030/6030 [=====] - 1s 229us/sample - loss: 0.402  
4 - accuracy: 0.8328  
Epoch 69/500  
6030/6030 [=====] - 2s 264us/sample - loss: 0.401  
6 - accuracy: 0.8325  
Epoch 70/500  
6030/6030 [=====] - 2s 257us/sample - loss: 0.401  
5 - accuracy: 0.8347  
Epoch 71/500  
6030/6030 [=====] - 2s 268us/sample - loss: 0.401  
7 - accuracy: 0.8333  
Epoch 72/500  
6030/6030 [=====] - 2s 251us/sample - loss: 0.401  
6 - accuracy: 0.8332  
Epoch 73/500  
6030/6030 [=====] - 2s 278us/sample - loss: 0.401  
8 - accuracy: 0.8322  
Epoch 74/500  
6030/6030 [=====] - 2s 272us/sample - loss: 0.401  
4 - accuracy: 0.8350  
Epoch 75/500  
6030/6030 [=====] - 2s 254us/sample - loss: 0.401  
3 - accuracy: 0.8340  
Epoch 76/500  
6030/6030 [=====] - 1s 235us/sample - loss: 0.401  
5 - accuracy: 0.8327  
Epoch 77/500  
6030/6030 [=====] - 1s 225us/sample - loss: 0.401  
5 - accuracy: 0.8335  
Epoch 78/500  
6030/6030 [=====] - 2s 259us/sample - loss: 0.401  
3 - accuracy: 0.8333  
Epoch 79/500

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6030/6030 [=====] - 1s 239us/sample - loss: 0.401
1 - accuracy: 0.8340
Epoch 80/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.401
4 - accuracy: 0.8333
Epoch 81/500
6030/6030 [=====] - 2s 288us/sample - loss: 0.401
2 - accuracy: 0.8325
Epoch 82/500
6030/6030 [=====] - 2s 274us/sample - loss: 0.400
8 - accuracy: 0.8338
Epoch 83/500
6030/6030 [=====] - 2s 275us/sample - loss: 0.400
8 - accuracy: 0.8312
Epoch 84/500
6030/6030 [=====] - 2s 362us/sample - loss: 0.400
7 - accuracy: 0.8328
Epoch 85/500
6030/6030 [=====] - 2s 276us/sample - loss: 0.400
8 - accuracy: 0.8323
Epoch 86/500
6030/6030 [=====] - 2s 284us/sample - loss: 0.400
6 - accuracy: 0.8335
Epoch 87/500
6030/6030 [=====] - 2s 285us/sample - loss: 0.401
0 - accuracy: 0.8325
Epoch 88/500
6030/6030 [=====] - 2s 295us/sample - loss: 0.400
5 - accuracy: 0.8323
Epoch 89/500
6030/6030 [=====] - 2s 260us/sample - loss: 0.400
5 - accuracy: 0.8320
Epoch 90/500
6030/6030 [=====] - 2s 269us/sample - loss: 0.400
2 - accuracy: 0.8322
Epoch 91/500
6030/6030 [=====] - 2s 267us/sample - loss: 0.399
8 - accuracy: 0.8340
Epoch 92/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.400
7 - accuracy: 0.8330
Epoch 93/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.400
3 - accuracy: 0.8323
Epoch 94/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.400
7 - accuracy: 0.8328
Epoch 95/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.400
2 - accuracy: 0.8337
Epoch 96/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.400
4 - accuracy: 0.8323
Epoch 97/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.400
2 - accuracy: 0.8325
Epoch 98/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.400
1 - accuracy: 0.8337
Epoch 99/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.400
```

```
0 - accuracy: 0.8342
Epoch 100/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.400
5 - accuracy: 0.8320
Epoch 101/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.399
8 - accuracy: 0.8330
Epoch 102/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.399
7 - accuracy: 0.8325
Epoch 103/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.400
0 - accuracy: 0.8333
Epoch 104/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.400
0 - accuracy: 0.8345
Epoch 105/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.399
9 - accuracy: 0.8322
Epoch 106/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
9 - accuracy: 0.8347
Epoch 107/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
8 - accuracy: 0.8328
Epoch 108/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
9 - accuracy: 0.8335
Epoch 109/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.400
0 - accuracy: 0.8330
Epoch 110/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.399
6 - accuracy: 0.8327
Epoch 111/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.400
4 - accuracy: 0.8338
Epoch 112/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.399
8 - accuracy: 0.8353
Epoch 113/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.400
0 - accuracy: 0.8327
Epoch 114/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.399
8 - accuracy: 0.8340
Epoch 115/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.399
7 - accuracy: 0.8325
Epoch 116/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.400
2 - accuracy: 0.8335
Epoch 117/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
8 - accuracy: 0.8317
Epoch 118/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.399
7 - accuracy: 0.8340
Epoch 119/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.399
7 - accuracy: 0.8328
```

Epoch 120/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.399  
5 - accuracy: 0.8322  
Epoch 121/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.399  
6 - accuracy: 0.8315  
Epoch 122/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.399  
2 - accuracy: 0.8327  
Epoch 123/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.399  
9 - accuracy: 0.8328  
Epoch 124/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.399  
3 - accuracy: 0.8333  
Epoch 125/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.399  
0 - accuracy: 0.8327  
Epoch 126/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.399  
3 - accuracy: 0.8325  
Epoch 127/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.399  
2 - accuracy: 0.8325  
Epoch 128/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.398  
9 - accuracy: 0.8355  
Epoch 129/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.398  
8 - accuracy: 0.8328  
Epoch 130/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.398  
4 - accuracy: 0.8350  
Epoch 131/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.398  
6 - accuracy: 0.8335  
Epoch 132/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.398  
0 - accuracy: 0.8337  
Epoch 133/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.398  
8 - accuracy: 0.8322  
Epoch 134/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.398  
0 - accuracy: 0.8342  
Epoch 135/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.397  
8 - accuracy: 0.8345  
Epoch 136/500  
6030/6030 [=====] - 1s 211us/sample - loss: 0.398  
2 - accuracy: 0.8343  
Epoch 137/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.398  
0 - accuracy: 0.8332  
Epoch 138/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.397  
6 - accuracy: 0.8337  
Epoch 139/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.396  
8 - accuracy: 0.8337  
Epoch 140/500

```
6030/6030 [=====] - 1s 220us/sample - loss: 0.397
6 - accuracy: 0.8332
Epoch 141/500
6030/6030 [=====] - 1s 245us/sample - loss: 0.396
5 - accuracy: 0.8358
Epoch 142/500
6030/6030 [=====] - 2s 249us/sample - loss: 0.396
8 - accuracy: 0.8353
Epoch 143/500
6030/6030 [=====] - 1s 249us/sample - loss: 0.396
9 - accuracy: 0.8325
Epoch 144/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.395
8 - accuracy: 0.8340
Epoch 145/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.396
3 - accuracy: 0.8347
Epoch 146/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.396
2 - accuracy: 0.8347
Epoch 147/500
6030/6030 [=====] - 1s 233us/sample - loss: 0.396
0 - accuracy: 0.8342
Epoch 148/500
6030/6030 [=====] - 1s 231us/sample - loss: 0.395
4 - accuracy: 0.8357
Epoch 149/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.395
5 - accuracy: 0.8362
Epoch 150/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.395
0 - accuracy: 0.8355
Epoch 151/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.394
3 - accuracy: 0.8367
Epoch 152/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.393
9 - accuracy: 0.8365
Epoch 153/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.393
1 - accuracy: 0.8370
Epoch 154/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.392
0 - accuracy: 0.8378
Epoch 155/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.390
9 - accuracy: 0.8381
Epoch 156/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.389
2 - accuracy: 0.8357
Epoch 157/500
6030/6030 [=====] - 1s 239us/sample - loss: 0.387
7 - accuracy: 0.8362
Epoch 158/500
6030/6030 [=====] - 2s 271us/sample - loss: 0.386
0 - accuracy: 0.8390
Epoch 159/500
6030/6030 [=====] - 1s 224us/sample - loss: 0.384
0 - accuracy: 0.8398
Epoch 160/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.382
```

```
4 - accuracy: 0.8391
Epoch 161/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.381
5 - accuracy: 0.8390
Epoch 162/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.379
6 - accuracy: 0.8380
Epoch 163/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.376
8 - accuracy: 0.8398
Epoch 164/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.374
8 - accuracy: 0.8415
Epoch 165/500
6030/6030 [=====] - 2s 253us/sample - loss: 0.372
8 - accuracy: 0.8434
Epoch 166/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.371
1 - accuracy: 0.8461
Epoch 167/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.368
3 - accuracy: 0.8479
Epoch 168/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.367
4 - accuracy: 0.8468
Epoch 169/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.366
8 - accuracy: 0.8481
Epoch 170/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.365
8 - accuracy: 0.8473
Epoch 171/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.364
9 - accuracy: 0.8512
Epoch 172/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.364
2 - accuracy: 0.8484
Epoch 173/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.363
3 - accuracy: 0.8512
Epoch 174/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.362
5 - accuracy: 0.8524
Epoch 175/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.361
5 - accuracy: 0.8519
Epoch 176/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.361
4 - accuracy: 0.8516
Epoch 177/500
6030/6030 [=====] - 1s 232us/sample - loss: 0.360
0 - accuracy: 0.8522
Epoch 178/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.359
2 - accuracy: 0.8534
Epoch 179/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.357
8 - accuracy: 0.8529
Epoch 180/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.357
4 - accuracy: 0.8559
```

Epoch 181/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.357  
0 - accuracy: 0.8534  
Epoch 182/500  
6030/6030 [=====] - 1s 243us/sample - loss: 0.356  
4 - accuracy: 0.8537  
Epoch 183/500  
6030/6030 [=====] - 1s 212us/sample - loss: 0.356  
3 - accuracy: 0.8542  
Epoch 184/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.356  
8 - accuracy: 0.8544  
Epoch 185/500  
6030/6030 [=====] - 2s 257us/sample - loss: 0.355  
5 - accuracy: 0.8539  
Epoch 186/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.354  
6 - accuracy: 0.8557  
Epoch 187/500  
6030/6030 [=====] - 1s 210us/sample - loss: 0.355  
2 - accuracy: 0.8561  
Epoch 188/500  
6030/6030 [=====] - 1s 215us/sample - loss: 0.354  
4 - accuracy: 0.8564  
Epoch 189/500  
6030/6030 [=====] - 1s 236us/sample - loss: 0.353  
6 - accuracy: 0.8564  
Epoch 190/500  
6030/6030 [=====] - 2s 253us/sample - loss: 0.354  
0 - accuracy: 0.8572  
Epoch 191/500  
6030/6030 [=====] - 1s 242us/sample - loss: 0.353  
9 - accuracy: 0.8574  
Epoch 192/500  
6030/6030 [=====] - 2s 251us/sample - loss: 0.353  
5 - accuracy: 0.8556  
Epoch 193/500  
6030/6030 [=====] - 1s 217us/sample - loss: 0.353  
2 - accuracy: 0.8554  
Epoch 194/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.353  
7 - accuracy: 0.8549  
Epoch 195/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.353  
0 - accuracy: 0.8579  
Epoch 196/500  
6030/6030 [=====] - 1s 222us/sample - loss: 0.353  
3 - accuracy: 0.8544  
Epoch 197/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.354  
2 - accuracy: 0.8552  
Epoch 198/500  
6030/6030 [=====] - 1s 214us/sample - loss: 0.352  
8 - accuracy: 0.8572  
Epoch 199/500  
6030/6030 [=====] - 1s 222us/sample - loss: 0.352  
6 - accuracy: 0.8570  
Epoch 200/500  
6030/6030 [=====] - 1s 223us/sample - loss: 0.352  
4 - accuracy: 0.8556  
Epoch 201/500

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6030/6030 [=====] - 1s 236us/sample - loss: 0.352
7 - accuracy: 0.8570
Epoch 202/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.352
1 - accuracy: 0.8569
Epoch 203/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.352
0 - accuracy: 0.8551
Epoch 204/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.351
7 - accuracy: 0.8556
Epoch 205/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.352
4 - accuracy: 0.8575
Epoch 206/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.352
1 - accuracy: 0.8557
Epoch 207/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.351
6 - accuracy: 0.8559
Epoch 208/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.351
6 - accuracy: 0.8574
Epoch 209/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.351
5 - accuracy: 0.8562
Epoch 210/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.351
9 - accuracy: 0.8587
Epoch 211/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.351
5 - accuracy: 0.8572
Epoch 212/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.351
8 - accuracy: 0.8561
Epoch 213/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.351
6 - accuracy: 0.8574
Epoch 214/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.351
1 - accuracy: 0.8572
Epoch 215/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.351
6 - accuracy: 0.8579
Epoch 216/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.350
8 - accuracy: 0.8577
Epoch 217/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.352
1 - accuracy: 0.8569
Epoch 218/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.350
3 - accuracy: 0.8577
Epoch 219/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.350
1 - accuracy: 0.8570
Epoch 220/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.351
3 - accuracy: 0.8566
Epoch 221/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.350
```



```
9 - accuracy: 0.8579
Epoch 222/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.350
8 - accuracy: 0.8569
Epoch 223/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.350
4 - accuracy: 0.8574
Epoch 224/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.350
7 - accuracy: 0.8572
Epoch 225/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.350
8 - accuracy: 0.8562
Epoch 226/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.350
0 - accuracy: 0.8569
Epoch 227/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.350
1 - accuracy: 0.8557
Epoch 228/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.350
2 - accuracy: 0.8567
Epoch 229/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.349
9 - accuracy: 0.8580
Epoch 230/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.350
3 - accuracy: 0.8577
Epoch 231/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.349
8 - accuracy: 0.8562
Epoch 232/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.350
5 - accuracy: 0.8570
Epoch 233/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.349
7 - accuracy: 0.8554
Epoch 234/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.349
3 - accuracy: 0.8549
Epoch 235/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.350
0 - accuracy: 0.8575
Epoch 236/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.350
1 - accuracy: 0.8561
Epoch 237/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.349
8 - accuracy: 0.8566
Epoch 238/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.350
0 - accuracy: 0.8556
Epoch 239/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.349
9 - accuracy: 0.8544
Epoch 240/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.350
3 - accuracy: 0.8562
Epoch 241/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.349
8 - accuracy: 0.8574
```

Epoch 242/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.349  
4 - accuracy: 0.8584  
Epoch 243/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.349  
4 - accuracy: 0.8556  
Epoch 244/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.349  
5 - accuracy: 0.8556  
Epoch 245/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.349  
7 - accuracy: 0.8566  
Epoch 246/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.348  
8 - accuracy: 0.8557  
Epoch 247/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.349  
6 - accuracy: 0.8557  
Epoch 248/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.349  
5 - accuracy: 0.8549  
Epoch 249/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.349  
2 - accuracy: 0.8566  
Epoch 250/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.349  
4 - accuracy: 0.8574  
Epoch 251/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.349  
4 - accuracy: 0.8557  
Epoch 252/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.349  
5 - accuracy: 0.8552  
Epoch 253/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.348  
7 - accuracy: 0.8557  
Epoch 254/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.349  
7 - accuracy: 0.8570  
Epoch 255/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.349  
5 - accuracy: 0.8579  
Epoch 256/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.348  
7 - accuracy: 0.8561  
Epoch 257/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.349  
4 - accuracy: 0.8572  
Epoch 258/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.348  
6 - accuracy: 0.8564  
Epoch 259/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.348  
6 - accuracy: 0.8567  
Epoch 260/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.349  
2 - accuracy: 0.8564  
Epoch 261/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.349  
5 - accuracy: 0.8569  
Epoch 262/500

```
6030/6030 [=====] - 1s 200us/sample - loss: 0.348
8 - accuracy: 0.8544
Epoch 263/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.348
9 - accuracy: 0.8567
Epoch 264/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.349
1 - accuracy: 0.8557
Epoch 265/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.348
1 - accuracy: 0.8569
Epoch 266/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.348
6 - accuracy: 0.8580
Epoch 267/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.349
4 - accuracy: 0.8564
Epoch 268/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.348
9 - accuracy: 0.8572
Epoch 269/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.348
8 - accuracy: 0.8567
Epoch 270/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.349
2 - accuracy: 0.8566
Epoch 271/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.348
6 - accuracy: 0.8569
Epoch 272/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.348
4 - accuracy: 0.8554
Epoch 273/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.349
0 - accuracy: 0.8567
Epoch 274/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.348
1 - accuracy: 0.8567
Epoch 275/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.347
4 - accuracy: 0.8567
Epoch 276/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.348
4 - accuracy: 0.8564
Epoch 277/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.348
0 - accuracy: 0.8559
Epoch 278/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.348
6 - accuracy: 0.8564
Epoch 279/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.348
8 - accuracy: 0.8559
Epoch 280/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.348
0 - accuracy: 0.8570
Epoch 281/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.347
8 - accuracy: 0.8544
Epoch 282/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.347
```

```
9 - accuracy: 0.8549
Epoch 283/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.348
0 - accuracy: 0.8577
Epoch 284/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.348
0 - accuracy: 0.8566
Epoch 285/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.347
4 - accuracy: 0.8574
Epoch 286/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.347
8 - accuracy: 0.8570
Epoch 287/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.347
6 - accuracy: 0.8564
Epoch 288/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.348
2 - accuracy: 0.8569
Epoch 289/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.347
4 - accuracy: 0.8584
Epoch 290/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.348
1 - accuracy: 0.8585
Epoch 291/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.348
2 - accuracy: 0.8570
Epoch 292/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.347
9 - accuracy: 0.8567
Epoch 293/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.347
4 - accuracy: 0.8572
Epoch 294/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.347
9 - accuracy: 0.8579
Epoch 295/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.348
4 - accuracy: 0.8557
Epoch 296/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.347
6 - accuracy: 0.8567
Epoch 297/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.347
2 - accuracy: 0.8585
Epoch 298/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.347
9 - accuracy: 0.8569
Epoch 299/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.347
8 - accuracy: 0.8580
Epoch 300/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.348
2 - accuracy: 0.8567
Epoch 301/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.348
2 - accuracy: 0.8579
Epoch 302/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.348
4 - accuracy: 0.8582
```

Epoch 303/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.348  
8 - accuracy: 0.8554  
Epoch 304/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.347  
9 - accuracy: 0.8549  
Epoch 305/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.347  
3 - accuracy: 0.8562  
Epoch 306/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.347  
6 - accuracy: 0.8564  
Epoch 307/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.347  
5 - accuracy: 0.8554  
Epoch 308/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.347  
0 - accuracy: 0.8582  
Epoch 309/500  
6030/6030 [=====] - 1s 219us/sample - loss: 0.347  
5 - accuracy: 0.8562  
Epoch 310/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.347  
1 - accuracy: 0.8561  
Epoch 311/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.347  
5 - accuracy: 0.8574  
Epoch 312/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.347  
6 - accuracy: 0.8562  
Epoch 313/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.346  
8 - accuracy: 0.8585  
Epoch 314/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.346  
7 - accuracy: 0.8574  
Epoch 315/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.346  
7 - accuracy: 0.8564  
Epoch 316/500  
6030/6030 [=====] - 1s 222us/sample - loss: 0.347  
4 - accuracy: 0.8554  
Epoch 317/500  
6030/6030 [=====] - 1s 224us/sample - loss: 0.348  
0 - accuracy: 0.8566  
Epoch 318/500  
6030/6030 [=====] - 1s 221us/sample - loss: 0.347  
3 - accuracy: 0.8575  
Epoch 319/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.346  
9 - accuracy: 0.8570  
Epoch 320/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.348  
5 - accuracy: 0.8551  
Epoch 321/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.347  
1 - accuracy: 0.8561  
Epoch 322/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.347  
2 - accuracy: 0.8566  
Epoch 323/500

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6030/6030 [=====] - 1s 201us/sample - loss: 0.347
5 - accuracy: 0.8567
Epoch 324/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.347
6 - accuracy: 0.8544
Epoch 325/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.347
5 - accuracy: 0.8564
Epoch 326/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.346
9 - accuracy: 0.8564
Epoch 327/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.348
4 - accuracy: 0.8559
Epoch 328/500
6030/6030 [=====] - 1s 224us/sample - loss: 0.346
9 - accuracy: 0.8554
Epoch 329/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.347
9 - accuracy: 0.8562
Epoch 330/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.346
8 - accuracy: 0.8577
Epoch 331/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.348
1 - accuracy: 0.8582
Epoch 332/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.347
5 - accuracy: 0.8566
Epoch 333/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.347
2 - accuracy: 0.8580
Epoch 334/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.346
8 - accuracy: 0.8554
Epoch 335/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.347
0 - accuracy: 0.8557
Epoch 336/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.346
8 - accuracy: 0.8582
Epoch 337/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.346
3 - accuracy: 0.8585
Epoch 338/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.347
2 - accuracy: 0.8577
Epoch 339/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.347
6 - accuracy: 0.8567
Epoch 340/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.346
8 - accuracy: 0.8580
Epoch 341/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.347
7 - accuracy: 0.8564
Epoch 342/500
6030/6030 [=====] - 2s 257us/sample - loss: 0.346
8 - accuracy: 0.8587
Epoch 343/500
6030/6030 [=====] - 2s 259us/sample - loss: 0.347
```

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1 - accuracy: 0.8575
Epoch 344/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.346
4 - accuracy: 0.8567
Epoch 345/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.346
8 - accuracy: 0.8567
Epoch 346/500
6030/6030 [=====] - 1s 239us/sample - loss: 0.346
3 - accuracy: 0.8559
Epoch 347/500
6030/6030 [=====] - 1s 243us/sample - loss: 0.346
4 - accuracy: 0.8577
Epoch 348/500
6030/6030 [=====] - 1s 239us/sample - loss: 0.346
9 - accuracy: 0.8562
Epoch 349/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.346
7 - accuracy: 0.8569
Epoch 350/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.347
6 - accuracy: 0.8561
Epoch 351/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.346
5 - accuracy: 0.8559
Epoch 352/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.346
8 - accuracy: 0.8559
Epoch 353/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.346
5 - accuracy: 0.8582
Epoch 354/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.346
5 - accuracy: 0.8567
Epoch 355/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.347
1 - accuracy: 0.8552
Epoch 356/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.347
3 - accuracy: 0.8556
Epoch 357/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.346
7 - accuracy: 0.8547
Epoch 358/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.346
1 - accuracy: 0.8580
Epoch 359/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.346
1 - accuracy: 0.8562
Epoch 360/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.346
6 - accuracy: 0.8541
Epoch 361/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.346
6 - accuracy: 0.8569
Epoch 362/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.346
4 - accuracy: 0.8559
Epoch 363/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.346
8 - accuracy: 0.8561
```

Epoch 364/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.346  
7 - accuracy: 0.8546  
Epoch 365/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.347  
0 - accuracy: 0.8562  
Epoch 366/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.346  
2 - accuracy: 0.8559  
Epoch 367/500  
6030/6030 [=====] - 1s 210us/sample - loss: 0.346  
6 - accuracy: 0.8567  
Epoch 368/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.347  
1 - accuracy: 0.8577  
Epoch 369/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.345  
8 - accuracy: 0.8562  
Epoch 370/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.346  
1 - accuracy: 0.8557  
Epoch 371/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.347  
1 - accuracy: 0.8562  
Epoch 372/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.347  
2 - accuracy: 0.8559  
Epoch 373/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.345  
8 - accuracy: 0.8585  
Epoch 374/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.346  
0 - accuracy: 0.8549  
Epoch 375/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.346  
4 - accuracy: 0.8562  
Epoch 376/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.346  
6 - accuracy: 0.8559  
Epoch 377/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.346  
8 - accuracy: 0.8554  
Epoch 378/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.346  
9 - accuracy: 0.8556  
Epoch 379/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.346  
5 - accuracy: 0.8584  
Epoch 380/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.346  
7 - accuracy: 0.8549  
Epoch 381/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.345  
6 - accuracy: 0.8580  
Epoch 382/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.346  
3 - accuracy: 0.8566  
Epoch 383/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.346  
9 - accuracy: 0.8580  
Epoch 384/500



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6030/6030 [=====] - 1s 186us/sample - loss: 0.345
9 - accuracy: 0.8557
Epoch 385/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.344
9 - accuracy: 0.8580
Epoch 386/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.346
4 - accuracy: 0.8561
Epoch 387/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.346
4 - accuracy: 0.8549
Epoch 388/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.345
9 - accuracy: 0.8561
Epoch 389/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.345
9 - accuracy: 0.8559
Epoch 390/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.346
7 - accuracy: 0.8587
Epoch 391/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.346
1 - accuracy: 0.8567
Epoch 392/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.345
7 - accuracy: 0.8562
Epoch 393/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.346
7 - accuracy: 0.8564
Epoch 394/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.345
9 - accuracy: 0.8569
Epoch 395/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.346
7 - accuracy: 0.8572
Epoch 396/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.346
5 - accuracy: 0.8547
Epoch 397/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.346
6 - accuracy: 0.8564
Epoch 398/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.345
7 - accuracy: 0.8580
Epoch 399/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.346
1 - accuracy: 0.8546
Epoch 400/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.346
3 - accuracy: 0.8580
Epoch 401/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.345
6 - accuracy: 0.8572
Epoch 402/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.346
1 - accuracy: 0.8561
Epoch 403/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.345
9 - accuracy: 0.8574
Epoch 404/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.346
```

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5 - accuracy: 0.8569
Epoch 405/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.345
7 - accuracy: 0.8584
Epoch 406/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.345
5 - accuracy: 0.8580
Epoch 407/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.345
7 - accuracy: 0.8574
Epoch 408/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.345
6 - accuracy: 0.8599
Epoch 409/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.346
4 - accuracy: 0.8567
Epoch 410/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.345
5 - accuracy: 0.8577
Epoch 411/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.346
6 - accuracy: 0.8567
Epoch 412/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.346
2 - accuracy: 0.8590
Epoch 413/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.346
4 - accuracy: 0.8589
Epoch 414/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.346
2 - accuracy: 0.8569
Epoch 415/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.345
7 - accuracy: 0.8567
Epoch 416/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.346
4 - accuracy: 0.8580
Epoch 417/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.345
6 - accuracy: 0.8589
Epoch 418/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.345
8 - accuracy: 0.8569
Epoch 419/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.346
2 - accuracy: 0.8592
Epoch 420/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.346
5 - accuracy: 0.8559
Epoch 421/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.345
7 - accuracy: 0.8552
Epoch 422/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.345
7 - accuracy: 0.8564
Epoch 423/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.345
4 - accuracy: 0.8566
Epoch 424/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.345
9 - accuracy: 0.8564
```

Epoch 425/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.346  
4 - accuracy: 0.8592  
Epoch 426/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.346  
2 - accuracy: 0.8559  
Epoch 427/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.346  
0 - accuracy: 0.8580  
Epoch 428/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.346  
8 - accuracy: 0.8566  
Epoch 429/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.345  
5 - accuracy: 0.8554  
Epoch 430/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.346  
3 - accuracy: 0.8570  
Epoch 431/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.346  
1 - accuracy: 0.8580  
Epoch 432/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.345  
7 - accuracy: 0.8551  
Epoch 433/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.346  
1 - accuracy: 0.8564  
Epoch 434/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.345  
5 - accuracy: 0.8554  
Epoch 435/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.345  
6 - accuracy: 0.8561  
Epoch 436/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.346  
1 - accuracy: 0.8585  
Epoch 437/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.346  
5 - accuracy: 0.8567  
Epoch 438/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.345  
4 - accuracy: 0.8559  
Epoch 439/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.345  
5 - accuracy: 0.8599  
Epoch 440/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.346  
4 - accuracy: 0.8562  
Epoch 441/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.345  
2 - accuracy: 0.8584  
Epoch 442/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.345  
6 - accuracy: 0.8566  
Epoch 443/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.344  
9 - accuracy: 0.8575  
Epoch 444/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.345  
6 - accuracy: 0.8575  
Epoch 445/500

```
6030/6030 [=====] - 1s 203us/sample - loss: 0.345
7 - accuracy: 0.8590
Epoch 446/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.345
4 - accuracy: 0.8572
Epoch 447/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.345
7 - accuracy: 0.8562
Epoch 448/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.345
9 - accuracy: 0.8580
Epoch 449/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.345
2 - accuracy: 0.8572
Epoch 450/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.345
2 - accuracy: 0.8547
Epoch 451/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.345
1 - accuracy: 0.8570
Epoch 452/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.345
3 - accuracy: 0.8549
Epoch 453/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.345
9 - accuracy: 0.8589
Epoch 454/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.346
0 - accuracy: 0.8572
Epoch 455/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.345
6 - accuracy: 0.8590
Epoch 456/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.345
4 - accuracy: 0.8556
Epoch 457/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.345
6 - accuracy: 0.8572
Epoch 458/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.345
7 - accuracy: 0.8564
Epoch 459/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.345
6 - accuracy: 0.8559
Epoch 460/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.345
7 - accuracy: 0.8561
Epoch 461/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.345
0 - accuracy: 0.8569
Epoch 462/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.345
5 - accuracy: 0.8572
Epoch 463/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.345
9 - accuracy: 0.8544
Epoch 464/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.345
4 - accuracy: 0.8575
Epoch 465/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.345
```

```
4 - accuracy: 0.8587
Epoch 466/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.344
4 - accuracy: 0.8570
Epoch 467/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.345
9 - accuracy: 0.8579
Epoch 468/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.344
9 - accuracy: 0.8559
Epoch 469/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.345
1 - accuracy: 0.8587
Epoch 470/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.345
2 - accuracy: 0.8575
Epoch 471/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.344
6 - accuracy: 0.8582
Epoch 472/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.345
4 - accuracy: 0.8577
Epoch 473/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.345
5 - accuracy: 0.8572
Epoch 474/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.345
1 - accuracy: 0.8595
Epoch 475/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.344
9 - accuracy: 0.8562
Epoch 476/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.345
9 - accuracy: 0.8584
Epoch 477/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.345
4 - accuracy: 0.8554
Epoch 478/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.345
3 - accuracy: 0.8567
Epoch 479/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.345
2 - accuracy: 0.8569
Epoch 480/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.345
2 - accuracy: 0.8585
Epoch 481/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.344
8 - accuracy: 0.8572
Epoch 482/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.344
0 - accuracy: 0.8590
Epoch 483/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.345
1 - accuracy: 0.8557
Epoch 484/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.344
8 - accuracy: 0.8569
Epoch 485/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.345
0 - accuracy: 0.8567
```

Epoch 486/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.344  
5 - accuracy: 0.8592  
Epoch 487/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.344  
5 - accuracy: 0.8577  
Epoch 488/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.345  
1 - accuracy: 0.8564  
Epoch 489/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.345  
0 - accuracy: 0.8570  
Epoch 490/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.344  
5 - accuracy: 0.8564  
Epoch 491/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.346  
0 - accuracy: 0.8577  
Epoch 492/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.344  
8 - accuracy: 0.8589  
Epoch 493/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.345  
5 - accuracy: 0.8566  
Epoch 494/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.344  
6 - accuracy: 0.8580  
Epoch 495/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.344  
8 - accuracy: 0.8585  
Epoch 496/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.345  
8 - accuracy: 0.8569  
Epoch 497/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.344  
8 - accuracy: 0.8575  
Epoch 498/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.344  
6 - accuracy: 0.8582  
Epoch 499/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.344  
4 - accuracy: 0.8577  
Epoch 500/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.345  
2 - accuracy: 0.8569  
Train on 6030 samples  
Epoch 1/500  
6030/6030 [=====] - 2s 280us/sample - loss: 0.594  
6 - accuracy: 0.7887  
Epoch 2/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.446  
9 - accuracy: 0.7912  
Epoch 3/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.433  
6 - accuracy: 0.7912  
Epoch 4/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.428  
9 - accuracy: 0.7912  
Epoch 5/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.424  
9 - accuracy: 0.7912

Epoch 6/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.420  
2 - accuracy: 0.7912

Epoch 7/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.415  
4 - accuracy: 0.7912

Epoch 8/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.410  
7 - accuracy: 0.8128

Epoch 9/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.405  
9 - accuracy: 0.8247

Epoch 10/500  
6030/6030 [=====] - 1s 207us/sample - loss: 0.401  
5 - accuracy: 0.8257 - loss: 0.4006 - accuracy

Epoch 11/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.397  
4 - accuracy: 0.8280

Epoch 12/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.393  
4 - accuracy: 0.8269

Epoch 13/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.390  
0 - accuracy: 0.8275

Epoch 14/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.386  
4 - accuracy: 0.8294

Epoch 15/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.383  
6 - accuracy: 0.8375

Epoch 16/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.381  
3 - accuracy: 0.8411

Epoch 17/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.378  
4 - accuracy: 0.8449

Epoch 18/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.376  
5 - accuracy: 0.8439

Epoch 19/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.374  
8 - accuracy: 0.8463

Epoch 20/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.372  
9 - accuracy: 0.8466

Epoch 21/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.371  
5 - accuracy: 0.8471

Epoch 22/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.369  
6 - accuracy: 0.8509

Epoch 23/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.368  
6 - accuracy: 0.8496

Epoch 24/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.366  
9 - accuracy: 0.8514

Epoch 25/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.366  
3 - accuracy: 0.8474

Epoch 26/500

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6030/6030 [=====] - 1s 188us/sample - loss: 0.365
4 - accuracy: 0.8529
Epoch 27/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.364
4 - accuracy: 0.8509
Epoch 28/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.363
8 - accuracy: 0.8501
Epoch 29/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.363
4 - accuracy: 0.8519
Epoch 30/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.362
2 - accuracy: 0.8522
Epoch 31/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.362
2 - accuracy: 0.8534
Epoch 32/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.360
5 - accuracy: 0.8526
Epoch 33/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.360
2 - accuracy: 0.8532
Epoch 34/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.359
7 - accuracy: 0.8542
Epoch 35/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.359
5 - accuracy: 0.8524
Epoch 36/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.358
9 - accuracy: 0.8516
Epoch 37/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.358
3 - accuracy: 0.8517
Epoch 38/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.357
9 - accuracy: 0.8542
Epoch 39/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.357
8 - accuracy: 0.8554
Epoch 40/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.356
5 - accuracy: 0.8557
Epoch 41/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.357
3 - accuracy: 0.8556
Epoch 42/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.357
3 - accuracy: 0.8572
Epoch 43/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.355
0 - accuracy: 0.8566
Epoch 44/500
6030/6030 [=====] - 1s 243us/sample - loss: 0.355
3 - accuracy: 0.8574
Epoch 45/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.355
4 - accuracy: 0.8559
Epoch 46/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.355
```



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2 - accuracy: 0.8552
Epoch 47/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.354
1 - accuracy: 0.8570
Epoch 48/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.355
4 - accuracy: 0.8574
Epoch 49/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.354
7 - accuracy: 0.8561 - loss: 0.365
Epoch 50/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.353
8 - accuracy: 0.8579
Epoch 51/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.353
6 - accuracy: 0.8570
Epoch 52/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.354
2 - accuracy: 0.8557
Epoch 53/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.353
3 - accuracy: 0.8574
Epoch 54/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.353
6 - accuracy: 0.8584
Epoch 55/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.352
5 - accuracy: 0.8566
Epoch 56/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.353
9 - accuracy: 0.8577
Epoch 57/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.352
5 - accuracy: 0.8575
Epoch 58/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.353
0 - accuracy: 0.8584
Epoch 59/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.352
9 - accuracy: 0.8551
Epoch 60/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.351
7 - accuracy: 0.8569
Epoch 61/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.351
9 - accuracy: 0.8551
Epoch 62/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.352
4 - accuracy: 0.8567
Epoch 63/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.351
0 - accuracy: 0.8595
Epoch 64/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.352
0 - accuracy: 0.8561
Epoch 65/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.351
4 - accuracy: 0.8577
Epoch 66/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.351
5 - accuracy: 0.8609
```

Epoch 67/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.351  
0 - accuracy: 0.8579

Epoch 68/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.351  
0 - accuracy: 0.8575

Epoch 69/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.351  
0 - accuracy: 0.8562

Epoch 70/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.350  
5 - accuracy: 0.8562

Epoch 71/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.350  
5 - accuracy: 0.8577

Epoch 72/500  
6030/6030 [=====] - 1s 168us/sample - loss: 0.351  
2 - accuracy: 0.8570

Epoch 73/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.350  
0 - accuracy: 0.8561

Epoch 74/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.350  
7 - accuracy: 0.8567

Epoch 75/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.350  
7 - accuracy: 0.8595

Epoch 76/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.350  
1 - accuracy: 0.8574

Epoch 77/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.350  
5 - accuracy: 0.8569

Epoch 78/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.350  
3 - accuracy: 0.8569

Epoch 79/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.350  
8 - accuracy: 0.8537

Epoch 80/500  
6030/6030 [=====] - 1s 207us/sample - loss: 0.350  
5 - accuracy: 0.8566

Epoch 81/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.349  
5 - accuracy: 0.8564

Epoch 82/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.349  
5 - accuracy: 0.8572

Epoch 83/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.350  
4 - accuracy: 0.8564

Epoch 84/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.349  
4 - accuracy: 0.8577

Epoch 85/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.349  
6 - accuracy: 0.8546

Epoch 86/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.349  
8 - accuracy: 0.8559

Epoch 87/500

```
6030/6030 [=====] - 1s 182us/sample - loss: 0.350
0 - accuracy: 0.8534
Epoch 88/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.349
1 - accuracy: 0.8564
Epoch 89/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.349
9 - accuracy: 0.8547
Epoch 90/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.349
8 - accuracy: 0.8566
Epoch 91/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.349
2 - accuracy: 0.8562
Epoch 92/500
6030/6030 [=====] - 1s 236us/sample - loss: 0.349
6 - accuracy: 0.8551
Epoch 93/500
6030/6030 [=====] - 1s 247us/sample - loss: 0.349
8 - accuracy: 0.8570
Epoch 94/500
6030/6030 [=====] - 2s 251us/sample - loss: 0.349
2 - accuracy: 0.8556
Epoch 95/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.349
4 - accuracy: 0.8567
Epoch 96/500
6030/6030 [=====] - 1s 243us/sample - loss: 0.349
7 - accuracy: 0.8579
Epoch 97/500
6030/6030 [=====] - 1s 247us/sample - loss: 0.349
4 - accuracy: 0.8570
Epoch 98/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.349
7 - accuracy: 0.8569
Epoch 99/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.349
1 - accuracy: 0.8559
Epoch 100/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.348
0 - accuracy: 0.8559
Epoch 101/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.349
5 - accuracy: 0.8549
Epoch 102/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.348
7 - accuracy: 0.8575
Epoch 103/500
6030/6030 [=====] - 2s 260us/sample - loss: 0.349
8 - accuracy: 0.8537
Epoch 104/500
6030/6030 [=====] - 2s 258us/sample - loss: 0.348
3 - accuracy: 0.8567
Epoch 105/500
6030/6030 [=====] - 2s 265us/sample - loss: 0.348
4 - accuracy: 0.8577
Epoch 106/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.348
7 - accuracy: 0.8546
Epoch 107/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.347
```

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9 - accuracy: 0.8546
Epoch 108/500
6030/6030 [=====] - 2s 256us/sample - loss: 0.348
5 - accuracy: 0.8562
Epoch 109/500
6030/6030 [=====] - 2s 371us/sample - loss: 0.348
3 - accuracy: 0.8570
Epoch 110/500
6030/6030 [=====] - 2s 353us/sample - loss: 0.348
7 - accuracy: 0.8547
Epoch 111/500
6030/6030 [=====] - 2s 341us/sample - loss: 0.348
3 - accuracy: 0.8577
Epoch 112/500
6030/6030 [=====] - 2s 364us/sample - loss: 0.348
8 - accuracy: 0.8562
Epoch 113/500
6030/6030 [=====] - 2s 332us/sample - loss: 0.347
6 - accuracy: 0.8554
Epoch 114/500
6030/6030 [=====] - 2s 297us/sample - loss: 0.349
1 - accuracy: 0.8559
Epoch 115/500
6030/6030 [=====] - 2s 298us/sample - loss: 0.347
9 - accuracy: 0.8584
Epoch 116/500
6030/6030 [=====] - 2s 261us/sample - loss: 0.347
2 - accuracy: 0.8580
Epoch 117/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.347
8 - accuracy: 0.8561
Epoch 118/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.348
3 - accuracy: 0.8547
Epoch 119/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.348
2 - accuracy: 0.8532
Epoch 120/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.347
7 - accuracy: 0.8559
Epoch 121/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.347
9 - accuracy: 0.8580
Epoch 122/500
6030/6030 [=====] - 1s 244us/sample - loss: 0.347
2 - accuracy: 0.8585
Epoch 123/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.348
3 - accuracy: 0.8572
Epoch 124/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.347
9 - accuracy: 0.8549
Epoch 125/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.347
2 - accuracy: 0.8567
Epoch 126/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.347
7 - accuracy: 0.8570
Epoch 127/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.348
2 - accuracy: 0.8551
```

Epoch 128/500  
6030/6030 [=====] - 1s 214us/sample - loss: 0.347  
7 - accuracy: 0.8572

Epoch 129/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.346  
9 - accuracy: 0.8577

Epoch 130/500  
6030/6030 [=====] - 1s 210us/sample - loss: 0.347  
7 - accuracy: 0.8569

Epoch 131/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.347  
2 - accuracy: 0.8577

Epoch 132/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.347  
8 - accuracy: 0.8584

Epoch 133/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.347  
5 - accuracy: 0.8575

Epoch 134/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.346  
3 - accuracy: 0.8574

Epoch 135/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.346  
9 - accuracy: 0.8575

Epoch 136/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.346  
6 - accuracy: 0.8574

Epoch 137/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.347  
4 - accuracy: 0.8541

Epoch 138/500  
6030/6030 [=====] - 1s 210us/sample - loss: 0.346  
3 - accuracy: 0.8559 - loss: 0.3

Epoch 139/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.346  
5 - accuracy: 0.8569

Epoch 140/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.346  
3 - accuracy: 0.8585

Epoch 141/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.347  
1 - accuracy: 0.8567

Epoch 142/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.346  
8 - accuracy: 0.8551

Epoch 143/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.346  
7 - accuracy: 0.8569

Epoch 144/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.347  
2 - accuracy: 0.8577

Epoch 145/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.347  
0 - accuracy: 0.8561

Epoch 146/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.347  
7 - accuracy: 0.8562

Epoch 147/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.346  
9 - accuracy: 0.8577

Epoch 148/500

```
6030/6030 [=====] - 1s 179us/sample - loss: 0.346
2 - accuracy: 0.8589
Epoch 149/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.347
1 - accuracy: 0.8592
Epoch 150/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.346
4 - accuracy: 0.8577
Epoch 151/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.346
3 - accuracy: 0.8579
Epoch 152/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.346
9 - accuracy: 0.8582
Epoch 153/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.346
0 - accuracy: 0.8551
Epoch 154/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.346
1 - accuracy: 0.8597
Epoch 155/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.346
3 - accuracy: 0.8567
Epoch 156/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.345
4 - accuracy: 0.8566
Epoch 157/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.346
0 - accuracy: 0.8564
Epoch 158/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.345
4 - accuracy: 0.8547
Epoch 159/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.346
1 - accuracy: 0.8566
Epoch 160/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.346
7 - accuracy: 0.8575
Epoch 161/500
6030/6030 [=====] - 1s 238us/sample - loss: 0.345
9 - accuracy: 0.8587
Epoch 162/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.345
8 - accuracy: 0.8552
Epoch 163/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.345
4 - accuracy: 0.8580
Epoch 164/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.346
2 - accuracy: 0.8577
Epoch 165/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.346
0 - accuracy: 0.8582
Epoch 166/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.345
5 - accuracy: 0.8567
Epoch 167/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.346
0 - accuracy: 0.8587
Epoch 168/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.345
```

```
5 - accuracy: 0.8567
Epoch 169/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.345
8 - accuracy: 0.8566
Epoch 170/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.345
7 - accuracy: 0.8559
Epoch 171/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.345
7 - accuracy: 0.8570
Epoch 172/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.345
1 - accuracy: 0.8590
Epoch 173/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.345
8 - accuracy: 0.8564
Epoch 174/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.346
4 - accuracy: 0.8561
Epoch 175/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.345
0 - accuracy: 0.8562
Epoch 176/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.346
1 - accuracy: 0.8561
Epoch 177/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.344
9 - accuracy: 0.8570
Epoch 178/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.345
8 - accuracy: 0.8562
Epoch 179/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.345
8 - accuracy: 0.8595
Epoch 180/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.345
0 - accuracy: 0.8569
Epoch 181/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.344
8 - accuracy: 0.8585
Epoch 182/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.345
2 - accuracy: 0.8585
Epoch 183/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.345
2 - accuracy: 0.8582
Epoch 184/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.346
0 - accuracy: 0.8567
Epoch 185/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.345
2 - accuracy: 0.8572
Epoch 186/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.344
9 - accuracy: 0.8579
Epoch 187/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.345
7 - accuracy: 0.8570
Epoch 188/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.344
8 - accuracy: 0.8567
```

Epoch 189/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.344  
6 - accuracy: 0.8584  
Epoch 190/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.344  
9 - accuracy: 0.8572  
Epoch 191/500  
6030/6030 [=====] - 1s 207us/sample - loss: 0.345  
0 - accuracy: 0.8566  
Epoch 192/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.345  
3 - accuracy: 0.8552  
Epoch 193/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.345  
4 - accuracy: 0.8575  
Epoch 194/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.345  
4 - accuracy: 0.8582  
Epoch 195/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.344  
6 - accuracy: 0.8580  
Epoch 196/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.344  
5 - accuracy: 0.8584  
Epoch 197/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.344  
7 - accuracy: 0.8579  
Epoch 198/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.344  
7 - accuracy: 0.8572  
Epoch 199/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.345  
2 - accuracy: 0.8584  
Epoch 200/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.345  
2 - accuracy: 0.8600  
Epoch 201/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.345  
1 - accuracy: 0.8554  
Epoch 202/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.345  
2 - accuracy: 0.8575  
Epoch 203/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.344  
5 - accuracy: 0.8574  
Epoch 204/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.343  
8 - accuracy: 0.8577  
Epoch 205/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.344  
9 - accuracy: 0.8557  
Epoch 206/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.344  
2 - accuracy: 0.8559  
Epoch 207/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.344  
5 - accuracy: 0.8574  
Epoch 208/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.344  
5 - accuracy: 0.8585  
Epoch 209/500



```
6030/6030 [=====] - 1s 179us/sample - loss: 0.344
2 - accuracy: 0.8564
Epoch 210/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.344
6 - accuracy: 0.8580
Epoch 211/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.344
9 - accuracy: 0.8585
Epoch 212/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.344
2 - accuracy: 0.8600
Epoch 213/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.345
1 - accuracy: 0.8570
Epoch 214/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.344
7 - accuracy: 0.8557
Epoch 215/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.344
2 - accuracy: 0.8559
Epoch 216/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
8 - accuracy: 0.8594
Epoch 217/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.345
0 - accuracy: 0.8582
Epoch 218/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.345
0 - accuracy: 0.8556
Epoch 219/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
6 - accuracy: 0.8594
Epoch 220/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.344
8 - accuracy: 0.8570
Epoch 221/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.344
6 - accuracy: 0.8592
Epoch 222/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
4 - accuracy: 0.8580
Epoch 223/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
9 - accuracy: 0.8564
Epoch 224/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.344
8 - accuracy: 0.8566
Epoch 225/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.344
2 - accuracy: 0.8594
Epoch 226/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.344
1 - accuracy: 0.8590
Epoch 227/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.344
8 - accuracy: 0.8589
Epoch 228/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.344
3 - accuracy: 0.8570
Epoch 229/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.344
```

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6 - accuracy: 0.8584
Epoch 230/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
4 - accuracy: 0.8566
Epoch 231/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.343
7 - accuracy: 0.8590
Epoch 232/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.344
0 - accuracy: 0.8584
Epoch 233/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.344
4 - accuracy: 0.8579
Epoch 234/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
3 - accuracy: 0.8570
Epoch 235/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.344
2 - accuracy: 0.8589
Epoch 236/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
5 - accuracy: 0.8572
Epoch 237/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.344
1 - accuracy: 0.8582
Epoch 238/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.344
0 - accuracy: 0.8599
Epoch 239/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
7 - accuracy: 0.8577
Epoch 240/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
5 - accuracy: 0.8589
Epoch 241/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.344
1 - accuracy: 0.8595
Epoch 242/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.343
4 - accuracy: 0.8570
Epoch 243/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.344
4 - accuracy: 0.8579
Epoch 244/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
5 - accuracy: 0.8595
Epoch 245/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
3 - accuracy: 0.8599
Epoch 246/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
8 - accuracy: 0.8589
Epoch 247/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.343
6 - accuracy: 0.8585
Epoch 248/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.344
7 - accuracy: 0.8564
Epoch 249/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.343
0 - accuracy: 0.8604
```

Epoch 250/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.343  
4 - accuracy: 0.8574  
Epoch 251/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.344  
2 - accuracy: 0.8562  
Epoch 252/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.343  
3 - accuracy: 0.8582  
Epoch 253/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.343  
8 - accuracy: 0.8585  
Epoch 254/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.344  
4 - accuracy: 0.8574  
Epoch 255/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.344  
3 - accuracy: 0.8579  
Epoch 256/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.344  
2 - accuracy: 0.8594  
Epoch 257/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.342  
9 - accuracy: 0.8590 - loss: 0.3431 - accuracy: 0.85  
Epoch 258/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.344  
3 - accuracy: 0.8569  
Epoch 259/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.343  
1 - accuracy: 0.8572  
Epoch 260/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.343  
7 - accuracy: 0.8580  
Epoch 261/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.343  
7 - accuracy: 0.8585  
Epoch 262/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.343  
9 - accuracy: 0.8569  
Epoch 263/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.343  
2 - accuracy: 0.8577  
Epoch 264/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.343  
6 - accuracy: 0.8580  
Epoch 265/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.343  
5 - accuracy: 0.8587  
Epoch 266/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.343  
6 - accuracy: 0.8597  
Epoch 267/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.343  
9 - accuracy: 0.8587  
Epoch 268/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.344  
6 - accuracy: 0.8569  
Epoch 269/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.344  
5 - accuracy: 0.8584  
Epoch 270/500

```
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
8 - accuracy: 0.8587
Epoch 271/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
6 - accuracy: 0.8579
Epoch 272/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.343
9 - accuracy: 0.8577
Epoch 273/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.343
7 - accuracy: 0.8582
Epoch 274/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.343
6 - accuracy: 0.8595
Epoch 275/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
3 - accuracy: 0.8577
Epoch 276/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.344
0 - accuracy: 0.8557
Epoch 277/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
6 - accuracy: 0.8562
Epoch 278/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.343
9 - accuracy: 0.8587
Epoch 279/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.343
4 - accuracy: 0.8574
Epoch 280/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.343
5 - accuracy: 0.8582
Epoch 281/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.344
2 - accuracy: 0.8570
Epoch 282/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.344
0 - accuracy: 0.8572
Epoch 283/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.343
7 - accuracy: 0.8585
Epoch 284/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.343
9 - accuracy: 0.8587
Epoch 285/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.344
5 - accuracy: 0.8582
Epoch 286/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.343
3 - accuracy: 0.8597
Epoch 287/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.344
5 - accuracy: 0.8564
Epoch 288/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
4 - accuracy: 0.8574
Epoch 289/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.342
7 - accuracy: 0.8564
Epoch 290/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.343
```

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7 - accuracy: 0.8580
Epoch 291/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
9 - accuracy: 0.8590
Epoch 292/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.343
7 - accuracy: 0.8604
Epoch 293/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.343
8 - accuracy: 0.8567
Epoch 294/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.342
9 - accuracy: 0.8587
Epoch 295/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
1 - accuracy: 0.8584
Epoch 296/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
5 - accuracy: 0.8582
Epoch 297/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
3 - accuracy: 0.8587
Epoch 298/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
3 - accuracy: 0.8587
Epoch 299/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
2 - accuracy: 0.8570
Epoch 300/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
6 - accuracy: 0.8574
Epoch 301/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.344
1 - accuracy: 0.8584
Epoch 302/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.344
4 - accuracy: 0.8567
Epoch 303/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
5 - accuracy: 0.8584
Epoch 304/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
9 - accuracy: 0.8562
Epoch 305/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
7 - accuracy: 0.8567
Epoch 306/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
0 - accuracy: 0.8597
Epoch 307/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
7 - accuracy: 0.8567
Epoch 308/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.343
2 - accuracy: 0.8579
Epoch 309/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
8 - accuracy: 0.8567
Epoch 310/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.344
2 - accuracy: 0.8564
```

Epoch 311/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.344  
1 - accuracy: 0.8582  
Epoch 312/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.344  
2 - accuracy: 0.8577  
Epoch 313/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.343  
5 - accuracy: 0.8562  
Epoch 314/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.343  
4 - accuracy: 0.8584  
Epoch 315/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.343  
3 - accuracy: 0.8561  
Epoch 316/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.342  
4 - accuracy: 0.8604  
Epoch 317/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.344  
0 - accuracy: 0.8549  
Epoch 318/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.343  
4 - accuracy: 0.8561  
Epoch 319/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.344  
3 - accuracy: 0.8589  
Epoch 320/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.343  
7 - accuracy: 0.8552  
Epoch 321/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.342  
9 - accuracy: 0.8580  
Epoch 322/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.343  
7 - accuracy: 0.8592  
Epoch 323/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.342  
7 - accuracy: 0.8590  
Epoch 324/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.343  
5 - accuracy: 0.8564  
Epoch 325/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.343  
2 - accuracy: 0.8587  
Epoch 326/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.344  
1 - accuracy: 0.8577  
Epoch 327/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.343  
7 - accuracy: 0.8574  
Epoch 328/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.343  
8 - accuracy: 0.8582  
Epoch 329/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.343  
2 - accuracy: 0.8566  
Epoch 330/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.344  
1 - accuracy: 0.8604  
Epoch 331/500

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6030/6030 [=====] - 1s 172us/sample - loss: 0.343
2 - accuracy: 0.8587
Epoch 332/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
1 - accuracy: 0.8574
Epoch 333/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
4 - accuracy: 0.8559
Epoch 334/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
8 - accuracy: 0.8559
Epoch 335/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
7 - accuracy: 0.8575
Epoch 336/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
4 - accuracy: 0.8590
Epoch 337/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
0 - accuracy: 0.8567
Epoch 338/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.342
8 - accuracy: 0.8574
Epoch 339/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
0 - accuracy: 0.8592
Epoch 340/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
5 - accuracy: 0.8595
Epoch 341/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.343
8 - accuracy: 0.8559
Epoch 342/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
9 - accuracy: 0.8579
Epoch 343/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
9 - accuracy: 0.8602
Epoch 344/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
0 - accuracy: 0.8569
Epoch 345/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.342
8 - accuracy: 0.8574
Epoch 346/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
0 - accuracy: 0.8607
Epoch 347/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
0 - accuracy: 0.8599
Epoch 348/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
7 - accuracy: 0.8580
Epoch 349/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.342
9 - accuracy: 0.8585
Epoch 350/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
7 - accuracy: 0.8562
Epoch 351/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.344
```

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3 - accuracy: 0.8572
Epoch 352/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
4 - accuracy: 0.8575
Epoch 353/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
1 - accuracy: 0.8589
Epoch 354/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
0 - accuracy: 0.8582
Epoch 355/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.342
8 - accuracy: 0.8582
Epoch 356/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.343
8 - accuracy: 0.8585
Epoch 357/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.343
2 - accuracy: 0.8585
Epoch 358/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.343
6 - accuracy: 0.8590
Epoch 359/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
8 - accuracy: 0.8562
Epoch 360/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.342
5 - accuracy: 0.8592
Epoch 361/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.342
5 - accuracy: 0.8569
Epoch 362/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.343
0 - accuracy: 0.8577
Epoch 363/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
0 - accuracy: 0.8572
Epoch 364/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
2 - accuracy: 0.8612
Epoch 365/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.342
7 - accuracy: 0.8590
Epoch 366/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.343
6 - accuracy: 0.8579
Epoch 367/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.343
5 - accuracy: 0.8580
Epoch 368/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.343
5 - accuracy: 0.8570
Epoch 369/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.342
7 - accuracy: 0.8580
Epoch 370/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.342
5 - accuracy: 0.8614
Epoch 371/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
1 - accuracy: 0.8572
```



Epoch 372/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.343  
2 - accuracy: 0.8587  
Epoch 373/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.342  
0 - accuracy: 0.8604  
Epoch 374/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.342  
7 - accuracy: 0.8592  
Epoch 375/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.343  
3 - accuracy: 0.8610  
Epoch 376/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.343  
5 - accuracy: 0.8574  
Epoch 377/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.343  
2 - accuracy: 0.8584  
Epoch 378/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.343  
5 - accuracy: 0.8575  
Epoch 379/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.342  
7 - accuracy: 0.8582  
Epoch 380/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.343  
6 - accuracy: 0.8575  
Epoch 381/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.343  
5 - accuracy: 0.8589  
Epoch 382/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.342  
6 - accuracy: 0.8585  
Epoch 383/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.343  
1 - accuracy: 0.8580  
Epoch 384/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.343  
4 - accuracy: 0.8569  
Epoch 385/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.343  
2 - accuracy: 0.8597  
Epoch 386/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.342  
4 - accuracy: 0.8575  
Epoch 387/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.343  
4 - accuracy: 0.8570  
Epoch 388/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.342  
8 - accuracy: 0.8582  
Epoch 389/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.344  
0 - accuracy: 0.8585  
Epoch 390/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.343  
0 - accuracy: 0.8580  
Epoch 391/500  
6030/6030 [=====] - 1s 219us/sample - loss: 0.343  
0 - accuracy: 0.8577  
Epoch 392/500

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6030/6030 [=====] - 1s 223us/sample - loss: 0.342
4 - accuracy: 0.8579
Epoch 393/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.343
4 - accuracy: 0.8585
Epoch 394/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.343
5 - accuracy: 0.8577
Epoch 395/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.343
3 - accuracy: 0.8570
Epoch 396/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.343
0 - accuracy: 0.8574
Epoch 397/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.342
7 - accuracy: 0.8575
Epoch 398/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.343
0 - accuracy: 0.8580
Epoch 399/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.343
5 - accuracy: 0.8580
Epoch 400/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.342
4 - accuracy: 0.8592
Epoch 401/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.342
9 - accuracy: 0.8580
Epoch 402/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.343
8 - accuracy: 0.8585
Epoch 403/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.342
5 - accuracy: 0.8582
Epoch 404/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.344
1 - accuracy: 0.8547
Epoch 405/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.343
8 - accuracy: 0.8566
Epoch 406/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.343
0 - accuracy: 0.8579
Epoch 407/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.343
3 - accuracy: 0.8580
Epoch 408/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.342
1 - accuracy: 0.8587
Epoch 409/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.343
5 - accuracy: 0.8567
Epoch 410/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.343
0 - accuracy: 0.8585
Epoch 411/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.342
8 - accuracy: 0.8590
Epoch 412/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.343
```

5 - accuracy: 0.8594  
Epoch 413/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.342  
5 - accuracy: 0.8599  
Epoch 414/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.343  
3 - accuracy: 0.8580  
Epoch 415/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.342  
9 - accuracy: 0.8580  
Epoch 416/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.343  
6 - accuracy: 0.8589  
Epoch 417/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.343  
8 - accuracy: 0.8577  
Epoch 418/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.342  
6 - accuracy: 0.8592  
Epoch 419/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.343  
5 - accuracy: 0.8579  
Epoch 420/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.343  
2 - accuracy: 0.8567  
Epoch 421/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.343  
4 - accuracy: 0.8561  
Epoch 422/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.342  
5 - accuracy: 0.8590  
Epoch 423/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.343  
0 - accuracy: 0.8579  
Epoch 424/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.342  
9 - accuracy: 0.8585 - loss: 0.3434 - accuracy: 0.85  
Epoch 425/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.342  
9 - accuracy: 0.8579  
Epoch 426/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.343  
1 - accuracy: 0.8587  
Epoch 427/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.343  
3 - accuracy: 0.8570  
Epoch 428/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.343  
5 - accuracy: 0.8589  
Epoch 429/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.342  
9 - accuracy: 0.8567  
Epoch 430/500  
6030/6030 [=====] - 1s 168us/sample - loss: 0.342  
7 - accuracy: 0.8549  
Epoch 431/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.343  
4 - accuracy: 0.8575  
Epoch 432/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.342  
8 - accuracy: 0.8597

Epoch 433/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.342  
9 - accuracy: 0.8594  
Epoch 434/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.343  
5 - accuracy: 0.8562  
Epoch 435/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.342  
6 - accuracy: 0.8622  
Epoch 436/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.343  
3 - accuracy: 0.8582  
Epoch 437/500  
6030/6030 [=====] - 1s 168us/sample - loss: 0.342  
3 - accuracy: 0.8584  
Epoch 438/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.343  
1 - accuracy: 0.8599  
Epoch 439/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.343  
0 - accuracy: 0.8587  
Epoch 440/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.342  
7 - accuracy: 0.8564  
Epoch 441/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.343  
5 - accuracy: 0.8566  
Epoch 442/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.342  
1 - accuracy: 0.8584  
Epoch 443/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.343  
3 - accuracy: 0.8556  
Epoch 444/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.343  
8 - accuracy: 0.8589  
Epoch 445/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.342  
5 - accuracy: 0.8587  
Epoch 446/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.342  
9 - accuracy: 0.8574  
Epoch 447/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.342  
8 - accuracy: 0.8561  
Epoch 448/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.342  
6 - accuracy: 0.8584  
Epoch 449/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.343  
1 - accuracy: 0.8569  
Epoch 450/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.343  
5 - accuracy: 0.8590  
Epoch 451/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.342  
6 - accuracy: 0.8602  
Epoch 452/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.343  
1 - accuracy: 0.8580  
Epoch 453/500

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6030/6030 [=====] - 1s 171us/sample - loss: 0.343
6 - accuracy: 0.8582
Epoch 454/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.343
2 - accuracy: 0.8570 -
Epoch 455/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.342
4 - accuracy: 0.8590
Epoch 456/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.342
3 - accuracy: 0.8592
Epoch 457/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.342
8 - accuracy: 0.8599
Epoch 458/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.342
5 - accuracy: 0.8587
Epoch 459/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.342
6 - accuracy: 0.8556
Epoch 460/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.343
7 - accuracy: 0.8552
Epoch 461/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.343
4 - accuracy: 0.8575
Epoch 462/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
2 - accuracy: 0.8592
Epoch 463/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.342
8 - accuracy: 0.8570
Epoch 464/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.343
1 - accuracy: 0.8599
Epoch 465/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.342
4 - accuracy: 0.8585
Epoch 466/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.342
6 - accuracy: 0.8590
Epoch 467/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
9 - accuracy: 0.8577
Epoch 468/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.342
4 - accuracy: 0.8582
Epoch 469/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.342
9 - accuracy: 0.8617
Epoch 470/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.342
5 - accuracy: 0.8580
Epoch 471/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.342
9 - accuracy: 0.8589
Epoch 472/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.342
6 - accuracy: 0.8572
Epoch 473/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.342
```

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4 - accuracy: 0.8589
Epoch 474/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.343
2 - accuracy: 0.8612
Epoch 475/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.342
7 - accuracy: 0.8589
Epoch 476/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.342
7 - accuracy: 0.8597
Epoch 477/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.342
6 - accuracy: 0.8575
Epoch 478/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.342
9 - accuracy: 0.8561
Epoch 479/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.343
1 - accuracy: 0.8582
Epoch 480/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.343
0 - accuracy: 0.8570
Epoch 481/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.342
5 - accuracy: 0.8579
Epoch 482/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.343
4 - accuracy: 0.8557
Epoch 483/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
0 - accuracy: 0.8584
Epoch 484/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
0 - accuracy: 0.8587
Epoch 485/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.343
4 - accuracy: 0.8594
Epoch 486/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.343
0 - accuracy: 0.8599
Epoch 487/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.343
6 - accuracy: 0.8599
Epoch 488/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.342
6 - accuracy: 0.8574
Epoch 489/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.342
2 - accuracy: 0.8585
Epoch 490/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.342
9 - accuracy: 0.8585
Epoch 491/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.341
7 - accuracy: 0.8572
Epoch 492/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.342
6 - accuracy: 0.8607
Epoch 493/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.343
1 - accuracy: 0.8600
```

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Epoch 494/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.342
7 - accuracy: 0.8587
Epoch 495/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.341
9 - accuracy: 0.8584
Epoch 496/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.344
2 - accuracy: 0.8585
Epoch 497/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.342
0 - accuracy: 0.8575
Epoch 498/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.343
3 - accuracy: 0.8577
Epoch 499/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.344
2 - accuracy: 0.8580
Epoch 500/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.343
2 - accuracy: 0.8546
Train on 6030 samples
Epoch 1/500
6030/6030 [=====] - 1s 244us/sample - loss: 0.582
9 - accuracy: 0.7924
Epoch 2/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.442
3 - accuracy: 0.7934
Epoch 3/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.435
7 - accuracy: 0.7934
Epoch 4/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.433
5 - accuracy: 0.7934
Epoch 5/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.432
1 - accuracy: 0.7934
Epoch 6/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.431
3 - accuracy: 0.7934 - loss: 0.4318 -
Epoch 7/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.430
0 - accuracy: 0.7934
Epoch 8/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.429
2 - accuracy: 0.7934
Epoch 9/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.427
7 - accuracy: 0.7934
Epoch 10/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.426
2 - accuracy: 0.8048
Epoch 11/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.424
8 - accuracy: 0.8169
Epoch 12/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.423
0 - accuracy: 0.8174
Epoch 13/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.421
6 - accuracy: 0.8214
```

Epoch 14/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.420  
5 - accuracy: 0.8250  
Epoch 15/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.419  
2 - accuracy: 0.8247  
Epoch 16/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.418  
3 - accuracy: 0.8277  
Epoch 17/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.417  
2 - accuracy: 0.8264  
Epoch 18/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.416  
4 - accuracy: 0.8292  
Epoch 19/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.415  
8 - accuracy: 0.8272  
Epoch 20/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.415  
0 - accuracy: 0.8275  
Epoch 21/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.414  
2 - accuracy: 0.8294  
Epoch 22/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.413  
7 - accuracy: 0.8299  
Epoch 23/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.412  
6 - accuracy: 0.8303  
Epoch 24/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.412  
8 - accuracy: 0.8275  
Epoch 25/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.412  
2 - accuracy: 0.8310  
Epoch 26/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.411  
6 - accuracy: 0.8300  
Epoch 27/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.410  
8 - accuracy: 0.8303  
Epoch 28/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.410  
7 - accuracy: 0.8313  
Epoch 29/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.410  
0 - accuracy: 0.8328  
Epoch 30/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.410  
0 - accuracy: 0.8312  
Epoch 31/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.409  
3 - accuracy: 0.8317  
Epoch 32/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.409  
3 - accuracy: 0.8318 - loss: 0.4075 -  
Epoch 33/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.408  
7 - accuracy: 0.8312  
Epoch 34/500



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6030/6030 [=====] - 1s 172us/sample - loss: 0.408
5 - accuracy: 0.8307
Epoch 35/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.407
9 - accuracy: 0.8332
Epoch 36/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.408
1 - accuracy: 0.8322
Epoch 37/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.407
5 - accuracy: 0.8327
Epoch 38/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.407
1 - accuracy: 0.8327
Epoch 39/500
6030/6030 [=====] - ETA: 0s - loss: 0.4069 - accuracy: 0.8331
ETA: 0s - loss: 0.4095 - 1s 170us/sample - loss: 0.4073 - accuracy: 0.8328
Epoch 40/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.406
8 - accuracy: 0.8330
Epoch 41/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.406
9 - accuracy: 0.8323
Epoch 42/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.406
6 - accuracy: 0.8340
Epoch 43/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.406
3 - accuracy: 0.8327
Epoch 44/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.406
3 - accuracy: 0.8322
Epoch 45/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.405
9 - accuracy: 0.8313
Epoch 46/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.406
0 - accuracy: 0.8295
Epoch 47/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.405
9 - accuracy: 0.8335
Epoch 48/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.405
5 - accuracy: 0.8345
Epoch 49/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.405
3 - accuracy: 0.8328
Epoch 50/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.405
4 - accuracy: 0.8327
Epoch 51/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.405
2 - accuracy: 0.8340
Epoch 52/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.404
6 - accuracy: 0.8323
Epoch 53/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.404
8 - accuracy: 0.8332
Epoch 54/500
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6030/6030 [=====] - 1s 172us/sample - loss: 0.404
5 - accuracy: 0.8333
Epoch 55/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.404
6 - accuracy: 0.8315
Epoch 56/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.404
0 - accuracy: 0.8322
Epoch 57/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.404
4 - accuracy: 0.8337
Epoch 58/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.404
6 - accuracy: 0.8322
Epoch 59/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.404
2 - accuracy: 0.8330
Epoch 60/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.404
2 - accuracy: 0.8317
Epoch 61/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.403
7 - accuracy: 0.8332
Epoch 62/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.403
9 - accuracy: 0.8323
Epoch 63/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.403
9 - accuracy: 0.8325
Epoch 64/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.403
3 - accuracy: 0.8347
Epoch 65/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.403
7 - accuracy: 0.8318
Epoch 66/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.403
3 - accuracy: 0.8322
Epoch 67/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.403
2 - accuracy: 0.8338
Epoch 68/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.403
5 - accuracy: 0.8315
Epoch 69/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.403
3 - accuracy: 0.8335
Epoch 70/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.402
8 - accuracy: 0.8320
Epoch 71/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.402
9 - accuracy: 0.8338
Epoch 72/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.403
3 - accuracy: 0.8325
Epoch 73/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.402
6 - accuracy: 0.8328
Epoch 74/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.402
```

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7 - accuracy: 0.8342
Epoch 75/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.402
4 - accuracy: 0.8332
Epoch 76/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.402
4 - accuracy: 0.8342
Epoch 77/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.402
1 - accuracy: 0.8342
Epoch 78/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.402
2 - accuracy: 0.8340
Epoch 79/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.401
9 - accuracy: 0.8330
Epoch 80/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.401
8 - accuracy: 0.8318
Epoch 81/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.401
6 - accuracy: 0.8348
Epoch 82/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.401
8 - accuracy: 0.8338
Epoch 83/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.402
0 - accuracy: 0.8333
Epoch 84/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.401
6 - accuracy: 0.8320 - loss: 0.4
Epoch 85/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.401
9 - accuracy: 0.8345
Epoch 86/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.401
7 - accuracy: 0.8330
Epoch 87/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.400
8 - accuracy: 0.8327
Epoch 88/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.402
2 - accuracy: 0.8337
Epoch 89/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.401
2 - accuracy: 0.8335
Epoch 90/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.401
0 - accuracy: 0.8345
Epoch 91/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.401
0 - accuracy: 0.8338
Epoch 92/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.401
2 - accuracy: 0.8332
Epoch 93/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.400
9 - accuracy: 0.8337
Epoch 94/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.401
1 - accuracy: 0.8327
```

Epoch 95/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.401  
4 - accuracy: 0.8342

Epoch 96/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.400  
3 - accuracy: 0.8348

Epoch 97/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.401  
0 - accuracy: 0.8317

Epoch 98/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.401  
3 - accuracy: 0.8347

Epoch 99/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.401  
1 - accuracy: 0.8327

Epoch 100/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.400  
5 - accuracy: 0.8333

Epoch 101/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.400  
7 - accuracy: 0.8317

Epoch 102/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.400  
7 - accuracy: 0.8335

Epoch 103/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.400  
6 - accuracy: 0.8327

Epoch 104/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.400  
4 - accuracy: 0.8355

Epoch 105/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.400  
8 - accuracy: 0.8343

Epoch 106/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.400  
7 - accuracy: 0.8335 - loss: 0.3992 - ac

Epoch 107/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.400  
7 - accuracy: 0.8320

Epoch 108/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.400  
5 - accuracy: 0.8345

Epoch 109/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.400  
5 - accuracy: 0.8337

Epoch 110/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.400  
3 - accuracy: 0.8352

Epoch 111/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.400  
4 - accuracy: 0.8327

Epoch 112/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.400  
5 - accuracy: 0.8348

Epoch 113/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.400  
6 - accuracy: 0.8340

Epoch 114/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.400  
7 - accuracy: 0.8325

Epoch 115/500

```
6030/6030 [=====] - 1s 192us/sample - loss: 0.400
5 - accuracy: 0.8313
Epoch 116/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.400
6 - accuracy: 0.8333
Epoch 117/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.400
8 - accuracy: 0.8313
Epoch 118/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.400
4 - accuracy: 0.8332
Epoch 119/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.400
3 - accuracy: 0.8330
Epoch 120/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.400
5 - accuracy: 0.8325
Epoch 121/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.399
9 - accuracy: 0.8333
Epoch 122/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.400
3 - accuracy: 0.8335
Epoch 123/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.400
1 - accuracy: 0.8325
Epoch 124/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.400
3 - accuracy: 0.8343
Epoch 125/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.400
0 - accuracy: 0.8337
Epoch 126/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.400
1 - accuracy: 0.8330
Epoch 127/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.400
4 - accuracy: 0.8340
Epoch 128/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
9 - accuracy: 0.8332
Epoch 129/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.400
1 - accuracy: 0.8338
Epoch 130/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
9 - accuracy: 0.8353
Epoch 131/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
9 - accuracy: 0.8335
Epoch 132/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.400
0 - accuracy: 0.8332
Epoch 133/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.399
7 - accuracy: 0.8302
Epoch 134/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
9 - accuracy: 0.8325
Epoch 135/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
```

```
7 - accuracy: 0.8345
Epoch 136/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.400
0 - accuracy: 0.8350
Epoch 137/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
6 - accuracy: 0.8338
Epoch 138/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.400
1 - accuracy: 0.8343
Epoch 139/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
6 - accuracy: 0.8328
Epoch 140/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
9 - accuracy: 0.8340
Epoch 141/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
6 - accuracy: 0.8343
Epoch 142/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
6 - accuracy: 0.8343
Epoch 143/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
9 - accuracy: 0.8342
Epoch 144/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.399
9 - accuracy: 0.8342
Epoch 145/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.399
6 - accuracy: 0.8347
Epoch 146/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.399
6 - accuracy: 0.8342
Epoch 147/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.399
6 - accuracy: 0.8337
Epoch 148/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.399
8 - accuracy: 0.8335
Epoch 149/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.400
0 - accuracy: 0.8340
Epoch 150/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
5 - accuracy: 0.8352
Epoch 151/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
8 - accuracy: 0.8340
Epoch 152/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
6 - accuracy: 0.8333
Epoch 153/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
3 - accuracy: 0.8335
Epoch 154/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
7 - accuracy: 0.8362
Epoch 155/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
6 - accuracy: 0.8332
```

Epoch 156/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.399  
6 - accuracy: 0.8343  
Epoch 157/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.399  
5 - accuracy: 0.8337  
Epoch 158/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.400  
1 - accuracy: 0.8330  
Epoch 159/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.399  
5 - accuracy: 0.8337  
Epoch 160/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.399  
5 - accuracy: 0.8342  
Epoch 161/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.399  
3 - accuracy: 0.8328  
Epoch 162/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.399  
4 - accuracy: 0.8345  
Epoch 163/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.399  
7 - accuracy: 0.8332  
Epoch 164/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.399  
6 - accuracy: 0.8353  
Epoch 165/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.399  
5 - accuracy: 0.8338  
Epoch 166/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.399  
3 - accuracy: 0.8335  
Epoch 167/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.399  
6 - accuracy: 0.8335  
Epoch 168/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.399  
8 - accuracy: 0.8330  
Epoch 169/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.399  
6 - accuracy: 0.8345  
Epoch 170/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.399  
4 - accuracy: 0.8330  
Epoch 171/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.399  
5 - accuracy: 0.8357  
Epoch 172/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.399  
7 - accuracy: 0.8328  
Epoch 173/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.399  
0 - accuracy: 0.8363  
Epoch 174/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.399  
4 - accuracy: 0.8328  
Epoch 175/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.399  
5 - accuracy: 0.8338  
Epoch 176/500

```
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
1 - accuracy: 0.8337
Epoch 177/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
7 - accuracy: 0.8337
Epoch 178/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
3 - accuracy: 0.8337
Epoch 179/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
4 - accuracy: 0.8335
Epoch 180/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
2 - accuracy: 0.8342
Epoch 181/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
1 - accuracy: 0.8328
Epoch 182/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.399
1 - accuracy: 0.8330
Epoch 183/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
1 - accuracy: 0.8332
Epoch 184/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.399
3 - accuracy: 0.8343
Epoch 185/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.399
3 - accuracy: 0.8320
Epoch 186/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.399
1 - accuracy: 0.8327
Epoch 187/500
6030/6030 [=====] - 1s 224us/sample - loss: 0.399
2 - accuracy: 0.8342
Epoch 188/500
6030/6030 [=====] - 1s 224us/sample - loss: 0.399
3 - accuracy: 0.8350
Epoch 189/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.399
0 - accuracy: 0.8340
Epoch 190/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.399
3 - accuracy: 0.8328
Epoch 191/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.399
4 - accuracy: 0.8338
Epoch 192/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.399
2 - accuracy: 0.8343
Epoch 193/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.399
0 - accuracy: 0.8332
Epoch 194/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
1 - accuracy: 0.8332
Epoch 195/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
5 - accuracy: 0.8348
Epoch 196/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
```



```
8 - accuracy: 0.8322
Epoch 197/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
6 - accuracy: 0.8328
Epoch 198/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
3 - accuracy: 0.8327
Epoch 199/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
2 - accuracy: 0.8345
Epoch 200/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
2 - accuracy: 0.8338
Epoch 201/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
5 - accuracy: 0.8322
Epoch 202/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
0 - accuracy: 0.8342
Epoch 203/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
0 - accuracy: 0.8355
Epoch 204/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
9 - accuracy: 0.8335
Epoch 205/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
0 - accuracy: 0.8338
Epoch 206/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
9 - accuracy: 0.8340
Epoch 207/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
9 - accuracy: 0.8330
Epoch 208/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
1 - accuracy: 0.8343
Epoch 209/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
8 - accuracy: 0.8365
Epoch 210/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
3 - accuracy: 0.8328
Epoch 211/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
0 - accuracy: 0.8338
Epoch 212/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.399
1 - accuracy: 0.8360
Epoch 213/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
9 - accuracy: 0.8352
Epoch 214/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
0 - accuracy: 0.8338
Epoch 215/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.398
5 - accuracy: 0.8340
Epoch 216/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
5 - accuracy: 0.8355
```

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Epoch 217/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
5 - accuracy: 0.8332
Epoch 218/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
6 - accuracy: 0.8320
Epoch 219/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.399
3 - accuracy: 0.8343
Epoch 220/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
2 - accuracy: 0.8345
Epoch 221/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.399
5 - accuracy: 0.8348
Epoch 222/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
9 - accuracy: 0.8320
Epoch 223/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
2 - accuracy: 0.8340
Epoch 224/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.398
9 - accuracy: 0.8338
Epoch 225/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.398
9 - accuracy: 0.8345
Epoch 226/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
2 - accuracy: 0.8335
Epoch 227/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
0 - accuracy: 0.8342
Epoch 228/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.398
8 - accuracy: 0.8340
Epoch 229/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
8 - accuracy: 0.8330
Epoch 230/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
5 - accuracy: 0.8347
Epoch 231/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
7 - accuracy: 0.8340
Epoch 232/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
7 - accuracy: 0.8352
Epoch 233/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
9 - accuracy: 0.8335
Epoch 234/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.398
8 - accuracy: 0.8343
Epoch 235/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
8 - accuracy: 0.8330
Epoch 236/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
0 - accuracy: 0.8352
Epoch 237/500
```

```
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
1 - accuracy: 0.8343
Epoch 238/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
4 - accuracy: 0.8330
Epoch 239/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
1 - accuracy: 0.8340
Epoch 240/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
3 - accuracy: 0.8335
Epoch 241/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
4 - accuracy: 0.8343
Epoch 242/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
0 - accuracy: 0.8342
Epoch 243/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
1 - accuracy: 0.8343
Epoch 244/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
4 - accuracy: 0.8352
Epoch 245/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
3 - accuracy: 0.8347
Epoch 246/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
0 - accuracy: 0.8335
Epoch 247/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
8 - accuracy: 0.8342
Epoch 248/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
9 - accuracy: 0.8345
Epoch 249/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
9 - accuracy: 0.8360
Epoch 250/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
6 - accuracy: 0.8363
Epoch 251/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
9 - accuracy: 0.8342
Epoch 252/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
7 - accuracy: 0.8347
Epoch 253/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
9 - accuracy: 0.8357
Epoch 254/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
0 - accuracy: 0.8352
Epoch 255/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
3 - accuracy: 0.8352
Epoch 256/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.398
6 - accuracy: 0.8342
Epoch 257/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
```

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8 - accuracy: 0.8327
Epoch 258/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
8 - accuracy: 0.8355
Epoch 259/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
8 - accuracy: 0.8348
Epoch 260/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.399
0 - accuracy: 0.8340
Epoch 261/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
7 - accuracy: 0.8342
Epoch 262/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
7 - accuracy: 0.8343
Epoch 263/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
2 - accuracy: 0.8338
Epoch 264/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
9 - accuracy: 0.8335
Epoch 265/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
8 - accuracy: 0.8345
Epoch 266/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
0 - accuracy: 0.8345
Epoch 267/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
8 - accuracy: 0.8348
Epoch 268/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
6 - accuracy: 0.8358
Epoch 269/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
1 - accuracy: 0.8328
Epoch 270/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
1 - accuracy: 0.8343
Epoch 271/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
8 - accuracy: 0.8333
Epoch 272/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
0 - accuracy: 0.8327
Epoch 273/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
7 - accuracy: 0.8353
Epoch 274/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
8 - accuracy: 0.8335
Epoch 275/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.399
2 - accuracy: 0.8348
Epoch 276/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
6 - accuracy: 0.8338
Epoch 277/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
9 - accuracy: 0.8330
```

Epoch 278/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.398  
8 - accuracy: 0.8342  
Epoch 279/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
6 - accuracy: 0.8342  
Epoch 280/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
7 - accuracy: 0.8338  
Epoch 281/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.399  
0 - accuracy: 0.8337  
Epoch 282/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.398  
7 - accuracy: 0.8330  
Epoch 283/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.399  
0 - accuracy: 0.8325  
Epoch 284/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.399  
0 - accuracy: 0.8343  
Epoch 285/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.399  
0 - accuracy: 0.8340  
Epoch 286/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.399  
1 - accuracy: 0.8345  
Epoch 287/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
6 - accuracy: 0.8342  
Epoch 288/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.399  
1 - accuracy: 0.8337  
Epoch 289/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.399  
0 - accuracy: 0.8332  
Epoch 290/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
7 - accuracy: 0.8350  
Epoch 291/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.398  
2 - accuracy: 0.8365  
Epoch 292/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.399  
1 - accuracy: 0.8340  
Epoch 293/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.398  
7 - accuracy: 0.8345  
Epoch 294/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.398  
9 - accuracy: 0.8338  
Epoch 295/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.398  
9 - accuracy: 0.8355  
Epoch 296/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
9 - accuracy: 0.8332  
Epoch 297/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
8 - accuracy: 0.8348  
Epoch 298/500

```
6030/6030 [=====] - 1s 190us/sample - loss: 0.398
5 - accuracy: 0.8335
Epoch 299/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.398
7 - accuracy: 0.8347
Epoch 300/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.398
6 - accuracy: 0.8340
Epoch 301/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.398
9 - accuracy: 0.8330
Epoch 302/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.398
6 - accuracy: 0.8337
Epoch 303/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.398
7 - accuracy: 0.8343
Epoch 304/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.398
9 - accuracy: 0.8352
Epoch 305/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
6 - accuracy: 0.8335
Epoch 306/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.399
4 - accuracy: 0.8355
Epoch 307/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.398
4 - accuracy: 0.8342
Epoch 308/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.399
0 - accuracy: 0.8330
Epoch 309/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.398
8 - accuracy: 0.8335
Epoch 310/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.398
7 - accuracy: 0.8335
Epoch 311/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
7 - accuracy: 0.8352
Epoch 312/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.398
5 - accuracy: 0.8340
Epoch 313/500
6030/6030 [=====] - 2s 268us/sample - loss: 0.398
9 - accuracy: 0.8338
Epoch 314/500
6030/6030 [=====] - 2s 259us/sample - loss: 0.398
8 - accuracy: 0.8333
Epoch 315/500
6030/6030 [=====] - 2s 295us/sample - loss: 0.398
6 - accuracy: 0.8357
Epoch 316/500
6030/6030 [=====] - 2s 292us/sample - loss: 0.399
0 - accuracy: 0.8337
Epoch 317/500
6030/6030 [=====] - 2s 295us/sample - loss: 0.398
7 - accuracy: 0.8348
Epoch 318/500
6030/6030 [=====] - 2s 281us/sample - loss: 0.398
```

```
2 - accuracy: 0.8360
Epoch 319/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.398
6 - accuracy: 0.8337
Epoch 320/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.398
9 - accuracy: 0.8350
Epoch 321/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.398
5 - accuracy: 0.8333
Epoch 322/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.398
8 - accuracy: 0.8343
Epoch 323/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.398
9 - accuracy: 0.8342
Epoch 324/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.397
8 - accuracy: 0.8337
Epoch 325/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.398
7 - accuracy: 0.8353
Epoch 326/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.398
8 - accuracy: 0.8328
Epoch 327/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.398
5 - accuracy: 0.8345
Epoch 328/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.398
6 - accuracy: 0.8333
Epoch 329/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.398
8 - accuracy: 0.8335
Epoch 330/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.398
8 - accuracy: 0.8327
Epoch 331/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.398
6 - accuracy: 0.8355
Epoch 332/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.398
4 - accuracy: 0.8360
Epoch 333/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.398
7 - accuracy: 0.8343
Epoch 334/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
8 - accuracy: 0.8337
Epoch 335/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.398
7 - accuracy: 0.8347
Epoch 336/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.399
1 - accuracy: 0.8340
Epoch 337/500
6030/6030 [=====] - 1s 233us/sample - loss: 0.398
5 - accuracy: 0.8340
Epoch 338/500
6030/6030 [=====] - 1s 238us/sample - loss: 0.398
5 - accuracy: 0.8340
```

Epoch 339/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.398  
1 - accuracy: 0.8350  
Epoch 340/500  
6030/6030 [=====] - 2s 291us/sample - loss: 0.398  
6 - accuracy: 0.8337  
Epoch 341/500  
6030/6030 [=====] - 2s 314us/sample - loss: 0.398  
8 - accuracy: 0.8332  
Epoch 342/500  
6030/6030 [=====] - 2s 285us/sample - loss: 0.398  
4 - accuracy: 0.8337  
Epoch 343/500  
6030/6030 [=====] - 2s 266us/sample - loss: 0.398  
6 - accuracy: 0.8345  
Epoch 344/500  
6030/6030 [=====] - 1s 212us/sample - loss: 0.399  
0 - accuracy: 0.8345  
Epoch 345/500  
6030/6030 [=====] - 1s 225us/sample - loss: 0.398  
4 - accuracy: 0.8343  
Epoch 346/500  
6030/6030 [=====] - 1s 225us/sample - loss: 0.399  
2 - accuracy: 0.8353  
Epoch 347/500  
6030/6030 [=====] - 1s 223us/sample - loss: 0.399  
0 - accuracy: 0.8335  
Epoch 348/500  
6030/6030 [=====] - 1s 221us/sample - loss: 0.398  
5 - accuracy: 0.8318  
Epoch 349/500  
6030/6030 [=====] - 1s 231us/sample - loss: 0.398  
3 - accuracy: 0.8342  
Epoch 350/500  
6030/6030 [=====] - 1s 237us/sample - loss: 0.399  
2 - accuracy: 0.8347  
Epoch 351/500  
6030/6030 [=====] - 1s 224us/sample - loss: 0.398  
8 - accuracy: 0.8367  
Epoch 352/500  
6030/6030 [=====] - 1s 222us/sample - loss: 0.398  
9 - accuracy: 0.8337  
Epoch 353/500  
6030/6030 [=====] - 1s 220us/sample - loss: 0.398  
2 - accuracy: 0.8325  
Epoch 354/500  
6030/6030 [=====] - 1s 225us/sample - loss: 0.398  
4 - accuracy: 0.8360  
Epoch 355/500  
6030/6030 [=====] - 1s 239us/sample - loss: 0.398  
3 - accuracy: 0.8337  
Epoch 356/500  
6030/6030 [=====] - 1s 232us/sample - loss: 0.398  
9 - accuracy: 0.8348  
Epoch 357/500  
6030/6030 [=====] - 1s 224us/sample - loss: 0.399  
1 - accuracy: 0.8333  
Epoch 358/500  
6030/6030 [=====] - 1s 239us/sample - loss: 0.398  
9 - accuracy: 0.8338  
Epoch 359/500



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6030/6030 [=====] - 1s 239us/sample - loss: 0.398
8 - accuracy: 0.8345
Epoch 360/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.398
9 - accuracy: 0.8333
Epoch 361/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.398
7 - accuracy: 0.8330
Epoch 362/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.399
0 - accuracy: 0.8337
Epoch 363/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.398
5 - accuracy: 0.8332
Epoch 364/500
6030/6030 [=====] - 1s 231us/sample - loss: 0.398
7 - accuracy: 0.8337
Epoch 365/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.399
0 - accuracy: 0.8343
Epoch 366/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.398
8 - accuracy: 0.8337
Epoch 367/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.398
4 - accuracy: 0.8357
Epoch 368/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.398
3 - accuracy: 0.8332
Epoch 369/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.398
3 - accuracy: 0.8343
Epoch 370/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.398
9 - accuracy: 0.8332
Epoch 371/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
2 - accuracy: 0.8342
Epoch 372/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
3 - accuracy: 0.8322
Epoch 373/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.399
0 - accuracy: 0.8337
Epoch 374/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.398
8 - accuracy: 0.8340
Epoch 375/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.398
7 - accuracy: 0.8343
Epoch 376/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.398
7 - accuracy: 0.8330
Epoch 377/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.398
8 - accuracy: 0.8328
Epoch 378/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.398
6 - accuracy: 0.8333
Epoch 379/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.398
```

```
2 - accuracy: 0.8357
Epoch 380/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.398
9 - accuracy: 0.8338
Epoch 381/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.398
6 - accuracy: 0.8347
Epoch 382/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.398
5 - accuracy: 0.8337
Epoch 383/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.399
1 - accuracy: 0.8322
Epoch 384/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
6 - accuracy: 0.8320
Epoch 385/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.398
4 - accuracy: 0.8365
Epoch 386/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.398
5 - accuracy: 0.8345
Epoch 387/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.399
0 - accuracy: 0.8338
Epoch 388/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.398
3 - accuracy: 0.8340
Epoch 389/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.398
2 - accuracy: 0.8328
Epoch 390/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.398
6 - accuracy: 0.8348
Epoch 391/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.398
7 - accuracy: 0.8332
Epoch 392/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.397
9 - accuracy: 0.8353
Epoch 393/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.398
8 - accuracy: 0.8335
Epoch 394/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.399
1 - accuracy: 0.8340
Epoch 395/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.398
5 - accuracy: 0.8340
Epoch 396/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.398
4 - accuracy: 0.8333
Epoch 397/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.398
9 - accuracy: 0.8345
Epoch 398/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.398
6 - accuracy: 0.8333
Epoch 399/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.398
7 - accuracy: 0.8333
```

Epoch 400/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.398  
5 - accuracy: 0.8333  
Epoch 401/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.398  
6 - accuracy: 0.8338 - loss: 0.3991 - accuracy: 0.  
Epoch 402/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.398  
7 - accuracy: 0.8312  
Epoch 403/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.398  
5 - accuracy: 0.8340  
Epoch 404/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.399  
0 - accuracy: 0.8327  
Epoch 405/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.398  
6 - accuracy: 0.8323  
Epoch 406/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.398  
9 - accuracy: 0.8335  
Epoch 407/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.398  
3 - accuracy: 0.8348  
Epoch 408/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.398  
7 - accuracy: 0.8343  
Epoch 409/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.398  
8 - accuracy: 0.8343  
Epoch 410/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.398  
7 - accuracy: 0.8335  
Epoch 411/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.398  
6 - accuracy: 0.8325  
Epoch 412/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.398  
7 - accuracy: 0.8343  
Epoch 413/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.398  
4 - accuracy: 0.8335  
Epoch 414/500  
6030/6030 [=====] - 1s 225us/sample - loss: 0.398  
6 - accuracy: 0.8342  
Epoch 415/500  
6030/6030 [=====] - 1s 228us/sample - loss: 0.398  
4 - accuracy: 0.8325  
Epoch 416/500  
6030/6030 [=====] - 1s 231us/sample - loss: 0.398  
9 - accuracy: 0.8348  
Epoch 417/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.398  
4 - accuracy: 0.8338  
Epoch 418/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.398  
7 - accuracy: 0.8328  
Epoch 419/500  
6030/6030 [=====] - 1s 246us/sample - loss: 0.398  
4 - accuracy: 0.8342  
Epoch 420/500

```
6030/6030 [=====] - 1s 226us/sample - loss: 0.398
4 - accuracy: 0.8343
Epoch 421/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.398
4 - accuracy: 0.8340
Epoch 422/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.398
3 - accuracy: 0.8347
Epoch 423/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.398
4 - accuracy: 0.8330
Epoch 424/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.398
8 - accuracy: 0.8338
Epoch 425/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.398
2 - accuracy: 0.8342
Epoch 426/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.398
4 - accuracy: 0.8335
Epoch 427/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.398
6 - accuracy: 0.8345
Epoch 428/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.398
3 - accuracy: 0.8337
Epoch 429/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.398
6 - accuracy: 0.8343
Epoch 430/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.398
3 - accuracy: 0.8342
Epoch 431/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.398
6 - accuracy: 0.8352
Epoch 432/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.397
7 - accuracy: 0.8340
Epoch 433/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.399
6 - accuracy: 0.8362
Epoch 434/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.397
9 - accuracy: 0.8358
Epoch 435/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.399
1 - accuracy: 0.8337
Epoch 436/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.398
5 - accuracy: 0.8352
Epoch 437/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.398
7 - accuracy: 0.8350
Epoch 438/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.398
4 - accuracy: 0.8330
Epoch 439/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.398
6 - accuracy: 0.8345
Epoch 440/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.398
```

```
9 - accuracy: 0.8337
Epoch 441/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.398
5 - accuracy: 0.8338
Epoch 442/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.398
5 - accuracy: 0.8345
Epoch 443/500
6030/6030 [=====] - 2s 251us/sample - loss: 0.398
2 - accuracy: 0.8328
Epoch 444/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.398
9 - accuracy: 0.8337
Epoch 445/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.398
8 - accuracy: 0.8337
Epoch 446/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.398
7 - accuracy: 0.8350
Epoch 447/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.398
6 - accuracy: 0.8332
Epoch 448/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.398
8 - accuracy: 0.8340
Epoch 449/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.399
0 - accuracy: 0.8342
Epoch 450/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.398
6 - accuracy: 0.8352
Epoch 451/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
6 - accuracy: 0.8348
Epoch 452/500
6030/6030 [=====] - 1s 246us/sample - loss: 0.398
7 - accuracy: 0.8355
Epoch 453/500
6030/6030 [=====] - 2s 277us/sample - loss: 0.398
8 - accuracy: 0.8348
Epoch 454/500
6030/6030 [=====] - 2s 257us/sample - loss: 0.398
9 - accuracy: 0.8345
Epoch 455/500
6030/6030 [=====] - 2s 257us/sample - loss: 0.398
3 - accuracy: 0.8352
Epoch 456/500
6030/6030 [=====] - 2s 267us/sample - loss: 0.398
6 - accuracy: 0.8327
Epoch 457/500
6030/6030 [=====] - 2s 267us/sample - loss: 0.398
2 - accuracy: 0.8345
Epoch 458/500
6030/6030 [=====] - 2s 258us/sample - loss: 0.398
4 - accuracy: 0.8355
Epoch 459/500
6030/6030 [=====] - 2s 268us/sample - loss: 0.398
4 - accuracy: 0.8353 - loss: 0.3984 - accuracy:
Epoch 460/500
6030/6030 [=====] - 2s 256us/sample - loss: 0.398
6 - accuracy: 0.8332
```

Epoch 461/500  
6030/6030 [=====] - 1s 233us/sample - loss: 0.398  
8 - accuracy: 0.8333  
Epoch 462/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.398  
8 - accuracy: 0.8353  
Epoch 463/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.398  
5 - accuracy: 0.8345  
Epoch 464/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.397  
8 - accuracy: 0.8332  
Epoch 465/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.398  
4 - accuracy: 0.8335  
Epoch 466/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.398  
8 - accuracy: 0.8333  
Epoch 467/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.398  
7 - accuracy: 0.8340  
Epoch 468/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.398  
5 - accuracy: 0.8355  
Epoch 469/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.398  
5 - accuracy: 0.8342  
Epoch 470/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.398  
5 - accuracy: 0.8348 - loss: 0.3992 -  
Epoch 471/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
8 - accuracy: 0.8350  
Epoch 472/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.398  
3 - accuracy: 0.8340  
Epoch 473/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.398  
7 - accuracy: 0.8342  
Epoch 474/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.398  
9 - accuracy: 0.8323  
Epoch 475/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.398  
2 - accuracy: 0.8348  
Epoch 476/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.398  
5 - accuracy: 0.8343  
Epoch 477/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.398  
2 - accuracy: 0.8352  
Epoch 478/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.398  
8 - accuracy: 0.8337  
Epoch 479/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.398  
4 - accuracy: 0.8340  
Epoch 480/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.398  
9 - accuracy: 0.8337  
Epoch 481/500

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6030/6030 [=====] - 1s 178us/sample - loss: 0.398
3 - accuracy: 0.8345
Epoch 482/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.398
5 - accuracy: 0.8335
Epoch 483/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.397
9 - accuracy: 0.8330
Epoch 484/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.398
7 - accuracy: 0.8353
Epoch 485/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.398
7 - accuracy: 0.8323
Epoch 486/500
6030/6030 [=====] - ETA: 0s - loss: 0.4001 - accu
racy: 0.83 - 1s 180us/sample - loss: 0.3983 - accuracy: 0.8337
Epoch 487/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.398
7 - accuracy: 0.8318
Epoch 488/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.398
5 - accuracy: 0.8340
Epoch 489/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.398
3 - accuracy: 0.8348
Epoch 490/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.398
5 - accuracy: 0.8323
Epoch 491/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.398
7 - accuracy: 0.8343
Epoch 492/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.398
6 - accuracy: 0.8345
Epoch 493/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.398
7 - accuracy: 0.8330
Epoch 494/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.398
0 - accuracy: 0.8338
Epoch 495/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.398
4 - accuracy: 0.8348
Epoch 496/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.398
5 - accuracy: 0.8325
Epoch 497/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.398
8 - accuracy: 0.8342
Epoch 498/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.398
2 - accuracy: 0.8335
Epoch 499/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.398
6 - accuracy: 0.8350
Epoch 500/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.398
4 - accuracy: 0.8348
Train on 6030 samples
Epoch 1/500
```

```
6030/6030 [=====] - 2s 262us/sample - loss: 0.589
8 - accuracy: 0.7897
Epoch 2/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.445
8 - accuracy: 0.7920
Epoch 3/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.437
8 - accuracy: 0.7920
Epoch 4/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.434
5 - accuracy: 0.7920
Epoch 5/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.432
6 - accuracy: 0.7920
Epoch 6/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.430
9 - accuracy: 0.7920
Epoch 7/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.429
1 - accuracy: 0.7920
Epoch 8/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.426
8 - accuracy: 0.7920
Epoch 9/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.424
9 - accuracy: 0.8144
Epoch 10/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.423
4 - accuracy: 0.8179
Epoch 11/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.421
2 - accuracy: 0.8222
Epoch 12/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.418
4 - accuracy: 0.8252
Epoch 13/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.415
7 - accuracy: 0.8294
Epoch 14/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.414
5 - accuracy: 0.8279
Epoch 15/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.412
6 - accuracy: 0.8297
Epoch 16/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.410
9 - accuracy: 0.8284
Epoch 17/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.409
8 - accuracy: 0.8317
Epoch 18/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.408
5 - accuracy: 0.8300
Epoch 19/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.407
5 - accuracy: 0.8285
Epoch 20/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.406
8 - accuracy: 0.8297
Epoch 21/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.406
```



```
1 - accuracy: 0.8300
Epoch 22/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.405
3 - accuracy: 0.8308
Epoch 23/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.404
7 - accuracy: 0.8295
Epoch 24/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.404
3 - accuracy: 0.8305
Epoch 25/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.403
5 - accuracy: 0.8312
Epoch 26/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.403
0 - accuracy: 0.8305
Epoch 27/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.402
8 - accuracy: 0.8308
Epoch 28/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.402
4 - accuracy: 0.8299
Epoch 29/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.402
4 - accuracy: 0.8302
Epoch 30/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.401
2 - accuracy: 0.8310
Epoch 31/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.401
4 - accuracy: 0.8318
Epoch 32/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.401
5 - accuracy: 0.8315
Epoch 33/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.400
8 - accuracy: 0.8307
Epoch 34/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.400
6 - accuracy: 0.8335
Epoch 35/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.400
2 - accuracy: 0.8327
Epoch 36/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.400
2 - accuracy: 0.8313
Epoch 37/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.400
2 - accuracy: 0.8338
Epoch 38/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.399
8 - accuracy: 0.8325
Epoch 39/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.399
6 - accuracy: 0.8330
Epoch 40/500
6030/6030 [=====] - ETA: 0s - loss: 0.4001 - accu
racy: 0.83 - 1s 186us/sample - loss: 0.3993 - accuracy: 0.8328
Epoch 41/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.399
6 - accuracy: 0.8303
```

Epoch 42/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.399  
1 - accuracy: 0.8308

Epoch 43/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.398  
8 - accuracy: 0.8325

Epoch 44/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.398  
5 - accuracy: 0.8320

Epoch 45/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.398  
7 - accuracy: 0.8312

Epoch 46/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.398  
7 - accuracy: 0.8333

Epoch 47/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
2 - accuracy: 0.8332

Epoch 48/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
7 - accuracy: 0.8340

Epoch 49/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.398  
4 - accuracy: 0.8328

Epoch 50/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.398  
2 - accuracy: 0.8323

Epoch 51/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.398  
1 - accuracy: 0.8328

Epoch 52/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.398  
2 - accuracy: 0.8323

Epoch 53/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.398  
0 - accuracy: 0.8320

Epoch 54/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.398  
3 - accuracy: 0.8310

Epoch 55/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.398  
1 - accuracy: 0.8327

Epoch 56/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.397  
5 - accuracy: 0.8312

Epoch 57/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.397  
9 - accuracy: 0.8317

Epoch 58/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.398  
1 - accuracy: 0.8340

Epoch 59/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.397  
7 - accuracy: 0.8322

Epoch 60/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.397  
6 - accuracy: 0.8325

Epoch 61/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.397  
7 - accuracy: 0.8325

Epoch 62/500

```
6030/6030 [=====] - 1s 175us/sample - loss: 0.397
8 - accuracy: 0.8333
Epoch 63/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.397
9 - accuracy: 0.8330
Epoch 64/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.397
4 - accuracy: 0.8338
Epoch 65/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.397
4 - accuracy: 0.8337
Epoch 66/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.397
3 - accuracy: 0.8335
Epoch 67/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.397
4 - accuracy: 0.8330
Epoch 68/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.397
4 - accuracy: 0.8337
Epoch 69/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.396
9 - accuracy: 0.8332
Epoch 70/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.397
0 - accuracy: 0.8337
Epoch 71/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.397
2 - accuracy: 0.8350
Epoch 72/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.397
2 - accuracy: 0.8323
Epoch 73/500
6030/6030 [=====] - ETA: 0s - loss: 0.3982 - accuracy: 0.83 - 1s 176us/sample - loss: 0.3971 - accuracy: 0.8345
Epoch 74/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.396
8 - accuracy: 0.8350
Epoch 75/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.397
0 - accuracy: 0.8332
Epoch 76/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.396
8 - accuracy: 0.8333
Epoch 77/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.397
1 - accuracy: 0.8342
Epoch 78/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.397
0 - accuracy: 0.8335
Epoch 79/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.396
9 - accuracy: 0.8342
Epoch 80/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.396
7 - accuracy: 0.8343
Epoch 81/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.396
9 - accuracy: 0.8353
Epoch 82/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.397
```

```
0 - accuracy: 0.8332
Epoch 83/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.396
9 - accuracy: 0.8328
Epoch 84/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.396
4 - accuracy: 0.8347
Epoch 85/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.396
6 - accuracy: 0.8348
Epoch 86/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.396
3 - accuracy: 0.8327
Epoch 87/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.396
2 - accuracy: 0.8358
Epoch 88/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.396
4 - accuracy: 0.8338
Epoch 89/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.396
4 - accuracy: 0.8348
Epoch 90/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.396
4 - accuracy: 0.8327
Epoch 91/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.396
5 - accuracy: 0.8347
Epoch 92/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.396
5 - accuracy: 0.8355
Epoch 93/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.396
5 - accuracy: 0.8345
Epoch 94/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.396
6 - accuracy: 0.8338
Epoch 95/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.395
9 - accuracy: 0.8340
Epoch 96/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.396
7 - accuracy: 0.8357
Epoch 97/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.396
1 - accuracy: 0.8332
Epoch 98/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.396
2 - accuracy: 0.8342
Epoch 99/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.396
3 - accuracy: 0.8343
Epoch 100/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.396
0 - accuracy: 0.8343
Epoch 101/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.396
2 - accuracy: 0.8357
Epoch 102/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.396
2 - accuracy: 0.8348
```

Epoch 103/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.396  
1 - accuracy: 0.8352

Epoch 104/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.396  
3 - accuracy: 0.8338

Epoch 105/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.396  
0 - accuracy: 0.8350

Epoch 106/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.396  
0 - accuracy: 0.8355

Epoch 107/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.395  
9 - accuracy: 0.8358

Epoch 108/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.396  
1 - accuracy: 0.8343

Epoch 109/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.395  
9 - accuracy: 0.8363

Epoch 110/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.395  
7 - accuracy: 0.8348

Epoch 111/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.395  
8 - accuracy: 0.8362

Epoch 112/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.395  
8 - accuracy: 0.8348

Epoch 113/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.396  
1 - accuracy: 0.8352

Epoch 114/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.395  
5 - accuracy: 0.8350

Epoch 115/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.395  
4 - accuracy: 0.8363

Epoch 116/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.395  
8 - accuracy: 0.8353

Epoch 117/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.395  
9 - accuracy: 0.8352

Epoch 118/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.395  
9 - accuracy: 0.8348

Epoch 119/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.395  
7 - accuracy: 0.8355

Epoch 120/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.395  
6 - accuracy: 0.8342

Epoch 121/500  
6030/6030 [=====] - 1s 220us/sample - loss: 0.395  
9 - accuracy: 0.8352

Epoch 122/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.396  
0 - accuracy: 0.8353

Epoch 123/500

```
6030/6030 [=====] - 1s 177us/sample - loss: 0.395
8 - accuracy: 0.8342
Epoch 124/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.396
0 - accuracy: 0.8332
Epoch 125/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.395
6 - accuracy: 0.8343
Epoch 126/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.395
5 - accuracy: 0.8360
Epoch 127/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.395
4 - accuracy: 0.8352
Epoch 128/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.395
8 - accuracy: 0.8342
Epoch 129/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.395
3 - accuracy: 0.8362
Epoch 130/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.395
8 - accuracy: 0.8348
Epoch 131/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.395
3 - accuracy: 0.8355
Epoch 132/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.395
9 - accuracy: 0.8332
Epoch 133/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.395
2 - accuracy: 0.8360
Epoch 134/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.395
5 - accuracy: 0.8353 - loss: 0.3974 - accuracy: 0.
Epoch 135/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.395
4 - accuracy: 0.8332
Epoch 136/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.395
4 - accuracy: 0.8330
Epoch 137/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.395
8 - accuracy: 0.8347
Epoch 138/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
9 - accuracy: 0.8338
Epoch 139/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.395
4 - accuracy: 0.8350
Epoch 140/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.395
3 - accuracy: 0.8342
Epoch 141/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.395
2 - accuracy: 0.8363
Epoch 142/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.395
2 - accuracy: 0.8348
Epoch 143/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.395
```

```
5 - accuracy: 0.8340
Epoch 144/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.395
3 - accuracy: 0.8343
Epoch 145/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.395
5 - accuracy: 0.8348
Epoch 146/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.395
1 - accuracy: 0.8348
Epoch 147/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.395
3 - accuracy: 0.8357
Epoch 148/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.395
2 - accuracy: 0.8352
Epoch 149/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.394
8 - accuracy: 0.8368
Epoch 150/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.395
3 - accuracy: 0.8342
Epoch 151/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.395
1 - accuracy: 0.8358
Epoch 152/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.394
7 - accuracy: 0.8355
Epoch 153/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.395
3 - accuracy: 0.8343
Epoch 154/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.394
9 - accuracy: 0.8360
Epoch 155/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.395
3 - accuracy: 0.8358
Epoch 156/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.395
0 - accuracy: 0.8342
Epoch 157/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.394
6 - accuracy: 0.8357
Epoch 158/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.394
5 - accuracy: 0.8343
Epoch 159/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.394
6 - accuracy: 0.8362
Epoch 160/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.394
9 - accuracy: 0.8355
Epoch 161/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.394
5 - accuracy: 0.8342
Epoch 162/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.394
6 - accuracy: 0.8362
Epoch 163/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.394
5 - accuracy: 0.8350
```

Epoch 164/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.394  
6 - accuracy: 0.8353  
Epoch 165/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.394  
6 - accuracy: 0.8367 - loss: 0.3888 - accuracy  
Epoch 166/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.395  
1 - accuracy: 0.8360  
Epoch 167/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.394  
2 - accuracy: 0.8363  
Epoch 168/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.394  
4 - accuracy: 0.8353  
Epoch 169/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.394  
2 - accuracy: 0.8365  
Epoch 170/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.394  
5 - accuracy: 0.8352  
Epoch 171/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.394  
0 - accuracy: 0.8355  
Epoch 172/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.394  
0 - accuracy: 0.8345  
Epoch 173/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.393  
9 - accuracy: 0.8362  
Epoch 174/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.394  
0 - accuracy: 0.8362  
Epoch 175/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.393  
9 - accuracy: 0.8370  
Epoch 176/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.393  
5 - accuracy: 0.8363  
Epoch 177/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.393  
5 - accuracy: 0.8342  
Epoch 178/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.393  
9 - accuracy: 0.8357  
Epoch 179/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.393  
6 - accuracy: 0.8350  
Epoch 180/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.393  
7 - accuracy: 0.8375  
Epoch 181/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.393  
3 - accuracy: 0.8357  
Epoch 182/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.393  
5 - accuracy: 0.8373  
Epoch 183/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.393  
5 - accuracy: 0.8360  
Epoch 184/500



```
6030/6030 [=====] - 1s 178us/sample - loss: 0.393
2 - accuracy: 0.8362
Epoch 185/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.393
1 - accuracy: 0.8337
Epoch 186/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.393
2 - accuracy: 0.8365
Epoch 187/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.392
9 - accuracy: 0.8367
Epoch 188/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.393
4 - accuracy: 0.8363
Epoch 189/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.393
0 - accuracy: 0.8378
Epoch 190/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.393
1 - accuracy: 0.8358
Epoch 191/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.393
1 - accuracy: 0.8367
Epoch 192/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.392
8 - accuracy: 0.8360
Epoch 193/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.393
4 - accuracy: 0.8357
Epoch 194/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.393
0 - accuracy: 0.8358
Epoch 195/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.392
8 - accuracy: 0.8375
Epoch 196/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.393
0 - accuracy: 0.8370
Epoch 197/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.393
2 - accuracy: 0.8360
Epoch 198/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.392
3 - accuracy: 0.8381
Epoch 199/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.392
8 - accuracy: 0.8371
Epoch 200/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.393
1 - accuracy: 0.8357
Epoch 201/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.392
9 - accuracy: 0.8355
Epoch 202/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.392
7 - accuracy: 0.8357
Epoch 203/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.393
2 - accuracy: 0.8350
Epoch 204/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.392
```

```
6 - accuracy: 0.8363
Epoch 205/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.392
7 - accuracy: 0.8352
Epoch 206/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.392
7 - accuracy: 0.8347
Epoch 207/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.392
7 - accuracy: 0.8370
Epoch 208/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.392
6 - accuracy: 0.8368
Epoch 209/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.393
1 - accuracy: 0.8362
Epoch 210/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.392
8 - accuracy: 0.8358
Epoch 211/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.392
6 - accuracy: 0.8373
Epoch 212/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.392
7 - accuracy: 0.8365
Epoch 213/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.392
8 - accuracy: 0.8367
Epoch 214/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.392
7 - accuracy: 0.8348
Epoch 215/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.392
6 - accuracy: 0.8353
Epoch 216/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.392
9 - accuracy: 0.8357
Epoch 217/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.392
1 - accuracy: 0.8371
Epoch 218/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.392
9 - accuracy: 0.8360
Epoch 219/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.392
5 - accuracy: 0.8363
Epoch 220/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.392
5 - accuracy: 0.8350
Epoch 221/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.392
4 - accuracy: 0.8373
Epoch 222/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.392
4 - accuracy: 0.8370
Epoch 223/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.392
4 - accuracy: 0.8370
Epoch 224/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.392
5 - accuracy: 0.8373
```

Epoch 225/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.392  
2 - accuracy: 0.8371  
Epoch 226/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.392  
2 - accuracy: 0.8363  
Epoch 227/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.392  
3 - accuracy: 0.8358  
Epoch 228/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.392  
7 - accuracy: 0.8368  
Epoch 229/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.392  
5 - accuracy: 0.8368  
Epoch 230/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.392  
7 - accuracy: 0.8368  
Epoch 231/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.392  
1 - accuracy: 0.8386  
Epoch 232/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.392  
2 - accuracy: 0.8362  
Epoch 233/500  
6030/6030 [=====] - 1s 219us/sample - loss: 0.391  
9 - accuracy: 0.8367 - loss:  
Epoch 234/500  
6030/6030 [=====] - 1s 230us/sample - loss: 0.392  
1 - accuracy: 0.8380  
Epoch 235/500  
6030/6030 [=====] - 1s 232us/sample - loss: 0.391  
8 - accuracy: 0.8375  
Epoch 236/500  
6030/6030 [=====] - 1s 228us/sample - loss: 0.392  
0 - accuracy: 0.8378  
Epoch 237/500  
6030/6030 [=====] - 1s 233us/sample - loss: 0.391  
9 - accuracy: 0.8365  
Epoch 238/500  
6030/6030 [=====] - 1s 226us/sample - loss: 0.392  
0 - accuracy: 0.8360  
Epoch 239/500  
6030/6030 [=====] - 1s 242us/sample - loss: 0.391  
9 - accuracy: 0.8371  
Epoch 240/500  
6030/6030 [=====] - 1s 232us/sample - loss: 0.392  
1 - accuracy: 0.8352  
Epoch 241/500  
6030/6030 [=====] - 1s 230us/sample - loss: 0.391  
8 - accuracy: 0.8371  
Epoch 242/500  
6030/6030 [=====] - 1s 215us/sample - loss: 0.392  
2 - accuracy: 0.8360  
Epoch 243/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.392  
0 - accuracy: 0.8375  
Epoch 244/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.392  
1 - accuracy: 0.8358  
Epoch 245/500

```
6030/6030 [=====] - 1s 175us/sample - loss: 0.391
5 - accuracy: 0.8365 - loss: 0.3933 - accu
Epoch 246/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.392
4 - accuracy: 0.8371
Epoch 247/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.391
7 - accuracy: 0.8378
Epoch 248/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.391
9 - accuracy: 0.8365
Epoch 249/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.391
9 - accuracy: 0.8360
Epoch 250/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.391
7 - accuracy: 0.8365
Epoch 251/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.391
7 - accuracy: 0.8355
Epoch 252/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.392
0 - accuracy: 0.8395
Epoch 253/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.391
7 - accuracy: 0.8378
Epoch 254/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.391
7 - accuracy: 0.8380
Epoch 255/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.391
8 - accuracy: 0.8370
Epoch 256/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.391
8 - accuracy: 0.8373
Epoch 257/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.391
7 - accuracy: 0.8358
Epoch 258/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.391
4 - accuracy: 0.8358
Epoch 259/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.392
2 - accuracy: 0.8360 - loss: 0.3972
Epoch 260/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.391
4 - accuracy: 0.8370
Epoch 261/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.391
8 - accuracy: 0.8368
Epoch 262/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.391
9 - accuracy: 0.8365
Epoch 263/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.391
4 - accuracy: 0.8367
Epoch 264/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.391
4 - accuracy: 0.8368
Epoch 265/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.391
```

```
6 - accuracy: 0.8376
Epoch 266/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.391
5 - accuracy: 0.8370
Epoch 267/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.391
1 - accuracy: 0.8362
Epoch 268/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.391
2 - accuracy: 0.8376
Epoch 269/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.391
0 - accuracy: 0.8385
Epoch 270/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.391
1 - accuracy: 0.8367
Epoch 271/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.391
2 - accuracy: 0.8381
Epoch 272/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.391
0 - accuracy: 0.8376
Epoch 273/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.390
9 - accuracy: 0.8373
Epoch 274/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.391
2 - accuracy: 0.8368
Epoch 275/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.390
9 - accuracy: 0.8367
Epoch 276/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.390
7 - accuracy: 0.8368
Epoch 277/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.390
9 - accuracy: 0.8370
Epoch 278/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.391
4 - accuracy: 0.8376
Epoch 279/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.390
9 - accuracy: 0.8370
Epoch 280/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.391
2 - accuracy: 0.8391
Epoch 281/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.391
1 - accuracy: 0.8373
Epoch 282/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.391
4 - accuracy: 0.8376
Epoch 283/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.390
8 - accuracy: 0.8381
Epoch 284/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.391
2 - accuracy: 0.8376
Epoch 285/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.390
5 - accuracy: 0.8376
```

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Epoch 286/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.391
3 - accuracy: 0.8371
Epoch 287/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.390
7 - accuracy: 0.8381
Epoch 288/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.390
8 - accuracy: 0.8367
Epoch 289/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.390
5 - accuracy: 0.8376
Epoch 290/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.391
0 - accuracy: 0.8380
Epoch 291/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.390
7 - accuracy: 0.8373
Epoch 292/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.390
5 - accuracy: 0.8386
Epoch 293/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.390
6 - accuracy: 0.8371
Epoch 294/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.390
9 - accuracy: 0.8365
Epoch 295/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.390
7 - accuracy: 0.8368
Epoch 296/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.390
5 - accuracy: 0.8363
Epoch 297/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.390
8 - accuracy: 0.8391
Epoch 298/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.390
6 - accuracy: 0.8371
Epoch 299/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.390
6 - accuracy: 0.8371
Epoch 300/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.390
0 - accuracy: 0.8385
Epoch 301/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.390
9 - accuracy: 0.8376
Epoch 302/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.390
8 - accuracy: 0.8386
Epoch 303/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.390
8 - accuracy: 0.8376
Epoch 304/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.390
7 - accuracy: 0.8375
Epoch 305/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.390
7 - accuracy: 0.8386
Epoch 306/500
```

```
6030/6030 [=====] - 1s 176us/sample - loss: 0.390
5 - accuracy: 0.8365
Epoch 307/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.390
6 - accuracy: 0.8373
Epoch 308/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.390
3 - accuracy: 0.8375
Epoch 309/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.390
3 - accuracy: 0.8370
Epoch 310/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.390
6 - accuracy: 0.8383
Epoch 311/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.390
6 - accuracy: 0.8373
Epoch 312/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.390
7 - accuracy: 0.8391
Epoch 313/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.390
3 - accuracy: 0.8376
Epoch 314/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.390
7 - accuracy: 0.8370
Epoch 315/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.390
4 - accuracy: 0.8380
Epoch 316/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.390
7 - accuracy: 0.8395
Epoch 317/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.390
8 - accuracy: 0.8378
Epoch 318/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.390
2 - accuracy: 0.8396
Epoch 319/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.390
4 - accuracy: 0.8390
Epoch 320/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.390
6 - accuracy: 0.8391
Epoch 321/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.390
5 - accuracy: 0.8376
Epoch 322/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.390
4 - accuracy: 0.8375
Epoch 323/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.390
3 - accuracy: 0.8393
Epoch 324/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.390
4 - accuracy: 0.8395
Epoch 325/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.390
5 - accuracy: 0.8395
Epoch 326/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.389
```

```
5 - accuracy: 0.8396
Epoch 327/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.390
4 - accuracy: 0.8368
Epoch 328/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.390
4 - accuracy: 0.8385
Epoch 329/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.390
2 - accuracy: 0.8381
Epoch 330/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.390
5 - accuracy: 0.8388
Epoch 331/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.390
2 - accuracy: 0.8391
Epoch 332/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.390
3 - accuracy: 0.8368
Epoch 333/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.390
1 - accuracy: 0.8375
Epoch 334/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.390
5 - accuracy: 0.8395
Epoch 335/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.390
3 - accuracy: 0.8395
Epoch 336/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.390
1 - accuracy: 0.8403
Epoch 337/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.389
8 - accuracy: 0.8383
Epoch 338/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.390
3 - accuracy: 0.8393
Epoch 339/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.389
9 - accuracy: 0.8390
Epoch 340/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.390
1 - accuracy: 0.8371
Epoch 341/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.390
1 - accuracy: 0.8390
Epoch 342/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.390
2 - accuracy: 0.8376
Epoch 343/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.389
8 - accuracy: 0.8388
Epoch 344/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.390
8 - accuracy: 0.8376
Epoch 345/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.390
1 - accuracy: 0.8383
Epoch 346/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.389
8 - accuracy: 0.8391
```



Epoch 347/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.390  
0 - accuracy: 0.8388

Epoch 348/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.390  
1 - accuracy: 0.8388

Epoch 349/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.390  
5 - accuracy: 0.8381 - los

Epoch 350/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.390  
0 - accuracy: 0.8385

Epoch 351/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.390  
5 - accuracy: 0.8383

Epoch 352/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.390  
3 - accuracy: 0.8390

Epoch 353/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.389  
9 - accuracy: 0.8398

Epoch 354/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.390  
5 - accuracy: 0.8375

Epoch 355/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.389  
9 - accuracy: 0.8388

Epoch 356/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.390  
5 - accuracy: 0.8386

Epoch 357/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.390  
4 - accuracy: 0.8391

Epoch 358/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.390  
2 - accuracy: 0.8371

Epoch 359/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.390  
1 - accuracy: 0.8368

Epoch 360/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.389  
7 - accuracy: 0.8398

Epoch 361/500  
6030/6030 [=====] - 2s 272us/sample - loss: 0.390  
2 - accuracy: 0.8380

Epoch 362/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.390  
1 - accuracy: 0.8390

Epoch 363/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.390  
0 - accuracy: 0.8396

Epoch 364/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.390  
1 - accuracy: 0.8398

Epoch 365/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.390  
2 - accuracy: 0.8391

Epoch 366/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.390  
0 - accuracy: 0.8390

Epoch 367/500

```
6030/6030 [=====] - 1s 203us/sample - loss: 0.390
3 - accuracy: 0.8391
Epoch 368/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.390
3 - accuracy: 0.8398
Epoch 369/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.390
3 - accuracy: 0.8393
Epoch 370/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.390
0 - accuracy: 0.8383
Epoch 371/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.389
7 - accuracy: 0.8365
Epoch 372/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.390
0 - accuracy: 0.8383
Epoch 373/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.389
9 - accuracy: 0.8381
Epoch 374/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.390
0 - accuracy: 0.8390
Epoch 375/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.390
1 - accuracy: 0.8391
Epoch 376/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.390
1 - accuracy: 0.8391
Epoch 377/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.390
2 - accuracy: 0.8370
Epoch 378/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.389
8 - accuracy: 0.8373
Epoch 379/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.390
4 - accuracy: 0.8381
Epoch 380/500
6030/6030 [=====] - 2s 324us/sample - loss: 0.389
7 - accuracy: 0.8390
Epoch 381/500
6030/6030 [=====] - 2s 277us/sample - loss: 0.390
1 - accuracy: 0.8373
Epoch 382/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.390
0 - accuracy: 0.8385
Epoch 383/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.390
0 - accuracy: 0.8388
Epoch 384/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.390
1 - accuracy: 0.8378
Epoch 385/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.390
3 - accuracy: 0.8401
Epoch 386/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.390
4 - accuracy: 0.8385
Epoch 387/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.390
```

```
0 - accuracy: 0.8398
Epoch 388/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.390
0 - accuracy: 0.8390
Epoch 389/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.390
3 - accuracy: 0.8380
Epoch 390/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.389
8 - accuracy: 0.8393
Epoch 391/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.390
4 - accuracy: 0.8391
Epoch 392/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.389
9 - accuracy: 0.8385
Epoch 393/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.390
0 - accuracy: 0.8376
Epoch 394/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.389
9 - accuracy: 0.8378
Epoch 395/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.390
3 - accuracy: 0.8400
Epoch 396/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.389
9 - accuracy: 0.8400
Epoch 397/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.390
1 - accuracy: 0.8375
Epoch 398/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.390
1 - accuracy: 0.8380
Epoch 399/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.390
0 - accuracy: 0.8381
Epoch 400/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.389
9 - accuracy: 0.8396
Epoch 401/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.389
7 - accuracy: 0.8378
Epoch 402/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.390
1 - accuracy: 0.8385
Epoch 403/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.390
1 - accuracy: 0.8386
Epoch 404/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.390
1 - accuracy: 0.8386
Epoch 405/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.389
7 - accuracy: 0.8400
Epoch 406/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.390
3 - accuracy: 0.8386
Epoch 407/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.390
0 - accuracy: 0.8396
```

Epoch 408/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.390  
0 - accuracy: 0.8400

Epoch 409/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.389  
8 - accuracy: 0.8386

Epoch 410/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.390  
2 - accuracy: 0.8405

Epoch 411/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.389  
9 - accuracy: 0.8405

Epoch 412/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.390  
2 - accuracy: 0.8381

Epoch 413/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.390  
1 - accuracy: 0.8385

Epoch 414/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.389  
7 - accuracy: 0.8406

Epoch 415/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.390  
1 - accuracy: 0.8396

Epoch 416/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.390  
4 - accuracy: 0.8391

Epoch 417/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.389  
8 - accuracy: 0.8386

Epoch 418/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.389  
6 - accuracy: 0.8398

Epoch 419/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.389  
8 - accuracy: 0.8386

Epoch 420/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.390  
0 - accuracy: 0.8401

Epoch 421/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.390  
2 - accuracy: 0.8403

Epoch 422/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.389  
8 - accuracy: 0.8395

Epoch 423/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.390  
1 - accuracy: 0.8391

Epoch 424/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.389  
8 - accuracy: 0.8400

Epoch 425/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.389  
7 - accuracy: 0.8408

Epoch 426/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.389  
6 - accuracy: 0.8396

Epoch 427/500  
6030/6030 [=====] - 1s 219us/sample - loss: 0.390  
5 - accuracy: 0.8395

Epoch 428/500

```
6030/6030 [=====] - 1s 209us/sample - loss: 0.389
7 - accuracy: 0.8400
Epoch 429/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.390
0 - accuracy: 0.8398
Epoch 430/500
6030/6030 [=====] - 2s 249us/sample - loss: 0.389
7 - accuracy: 0.8403
Epoch 431/500
6030/6030 [=====] - 2s 268us/sample - loss: 0.390
1 - accuracy: 0.8393
Epoch 432/500
6030/6030 [=====] - 2s 271us/sample - loss: 0.389
6 - accuracy: 0.8390
Epoch 433/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.389
6 - accuracy: 0.8400
Epoch 434/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.389
5 - accuracy: 0.8400
Epoch 435/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.390
0 - accuracy: 0.8396
Epoch 436/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.389
8 - accuracy: 0.8386
Epoch 437/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.389
8 - accuracy: 0.8396
Epoch 438/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.389
9 - accuracy: 0.8380
Epoch 439/500
6030/6030 [=====] - 2s 266us/sample - loss: 0.389
9 - accuracy: 0.8406
Epoch 440/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.390
1 - accuracy: 0.8388
Epoch 441/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.389
7 - accuracy: 0.8386
Epoch 442/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.390
0 - accuracy: 0.8393
Epoch 443/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.389
8 - accuracy: 0.8385
Epoch 444/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.389
2 - accuracy: 0.8401
Epoch 445/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.389
8 - accuracy: 0.8383
Epoch 446/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.390
0 - accuracy: 0.8398
Epoch 447/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.389
9 - accuracy: 0.8403
Epoch 448/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.389
```

```
5 - accuracy: 0.8401
Epoch 449/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.389
8 - accuracy: 0.8390
Epoch 450/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.390
1 - accuracy: 0.8380
Epoch 451/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.390
0 - accuracy: 0.8393
Epoch 452/500
6030/6030 [=====] - 2s 258us/sample - loss: 0.389
6 - accuracy: 0.8398
Epoch 453/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.389
8 - accuracy: 0.8388
Epoch 454/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.389
8 - accuracy: 0.8400
Epoch 455/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.390
0 - accuracy: 0.8395
Epoch 456/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.389
8 - accuracy: 0.8398
Epoch 457/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.389
7 - accuracy: 0.8390
Epoch 458/500
6030/6030 [=====] - 2s 258us/sample - loss: 0.389
3 - accuracy: 0.8391
Epoch 459/500
6030/6030 [=====] - 1s 243us/sample - loss: 0.390
0 - accuracy: 0.8400
Epoch 460/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.389
8 - accuracy: 0.8400
Epoch 461/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.389
5 - accuracy: 0.8391
Epoch 462/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.389
5 - accuracy: 0.8396
Epoch 463/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.389
5 - accuracy: 0.8411
Epoch 464/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.389
8 - accuracy: 0.8390
Epoch 465/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.389
7 - accuracy: 0.8390
Epoch 466/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.389
6 - accuracy: 0.8401
Epoch 467/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.389
6 - accuracy: 0.8395
Epoch 468/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.389
5 - accuracy: 0.8390
```

Epoch 469/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.389  
4 - accuracy: 0.8378  
Epoch 470/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.389  
5 - accuracy: 0.8400  
Epoch 471/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.389  
6 - accuracy: 0.8401  
Epoch 472/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.389  
5 - accuracy: 0.8396  
Epoch 473/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.389  
4 - accuracy: 0.8416  
Epoch 474/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.389  
8 - accuracy: 0.8395  
Epoch 475/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.389  
4 - accuracy: 0.8396  
Epoch 476/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.389  
5 - accuracy: 0.8398  
Epoch 477/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.389  
2 - accuracy: 0.8393  
Epoch 478/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.389  
8 - accuracy: 0.8395  
Epoch 479/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.389  
0 - accuracy: 0.8398  
Epoch 480/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.389  
3 - accuracy: 0.8405  
Epoch 481/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.389  
3 - accuracy: 0.8390  
Epoch 482/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.389  
4 - accuracy: 0.8398  
Epoch 483/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.389  
2 - accuracy: 0.8398  
Epoch 484/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.388  
8 - accuracy: 0.8388  
Epoch 485/500  
6030/6030 [=====] - 1s 220us/sample - loss: 0.388  
7 - accuracy: 0.8415  
Epoch 486/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.389  
6 - accuracy: 0.8401  
Epoch 487/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.389  
1 - accuracy: 0.8391  
Epoch 488/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.389  
2 - accuracy: 0.8398  
Epoch 489/500

```
6030/6030 [=====] - 1s 173us/sample - loss: 0.389
3 - accuracy: 0.8403
Epoch 490/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.389
5 - accuracy: 0.8381
Epoch 491/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.388
7 - accuracy: 0.8380
Epoch 492/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.389
1 - accuracy: 0.8383
Epoch 493/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.389
3 - accuracy: 0.8403
Epoch 494/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.388
9 - accuracy: 0.8401
Epoch 495/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.388
9 - accuracy: 0.8415
Epoch 496/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.388
8 - accuracy: 0.8410
Epoch 497/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.389
1 - accuracy: 0.8401
Epoch 498/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.389
2 - accuracy: 0.8393
Epoch 499/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.389
0 - accuracy: 0.8416
Epoch 500/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.389
1 - accuracy: 0.8385
Train on 6030 samples
Epoch 1/500
6030/6030 [=====] - 1s 245us/sample - loss: 0.580
0 - accuracy: 0.7902
Epoch 2/500
6030/6030 [=====] - 1s 231us/sample - loss: 0.445
4 - accuracy: 0.7907
Epoch 3/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.439
4 - accuracy: 0.7907
Epoch 4/500
6030/6030 [=====] - 2s 252us/sample - loss: 0.436
2 - accuracy: 0.7907
Epoch 5/500
6030/6030 [=====] - 1s 232us/sample - loss: 0.433
2 - accuracy: 0.7907
Epoch 6/500
6030/6030 [=====] - 1s 243us/sample - loss: 0.430
1 - accuracy: 0.7907
Epoch 7/500
6030/6030 [=====] - 1s 243us/sample - loss: 0.427
7 - accuracy: 0.7922
Epoch 8/500
6030/6030 [=====] - 1s 231us/sample - loss: 0.426
1 - accuracy: 0.8123
Epoch 9/500
```



```
6030/6030 [=====] - 1s 227us/sample - loss: 0.424
3 - accuracy: 0.8227
Epoch 10/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.423
1 - accuracy: 0.8217
Epoch 11/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.421
8 - accuracy: 0.8249
Epoch 12/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.420
7 - accuracy: 0.8270
Epoch 13/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.420
0 - accuracy: 0.8280
Epoch 14/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.418
7 - accuracy: 0.8279
Epoch 15/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.418
1 - accuracy: 0.8290
Epoch 16/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.417
6 - accuracy: 0.8307
Epoch 17/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.416
8 - accuracy: 0.8305
Epoch 18/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.416
1 - accuracy: 0.8313
Epoch 19/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.415
7 - accuracy: 0.8317
Epoch 20/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.414
7 - accuracy: 0.8305
Epoch 21/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.414
7 - accuracy: 0.8313
Epoch 22/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.414
0 - accuracy: 0.8310
Epoch 23/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.413
5 - accuracy: 0.8307
Epoch 24/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.413
3 - accuracy: 0.8305
Epoch 25/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.413
0 - accuracy: 0.8323
Epoch 26/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.412
5 - accuracy: 0.8307
Epoch 27/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.412
1 - accuracy: 0.8315
Epoch 28/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.411
7 - accuracy: 0.8315
Epoch 29/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.411
```

```
6 - accuracy: 0.8317
Epoch 30/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.411
2 - accuracy: 0.8325
Epoch 31/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.410
7 - accuracy: 0.8320
Epoch 32/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.410
6 - accuracy: 0.8317
Epoch 33/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.410
1 - accuracy: 0.8325
Epoch 34/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.410
3 - accuracy: 0.8325
Epoch 35/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.410
0 - accuracy: 0.8302
Epoch 36/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.409
9 - accuracy: 0.8325
Epoch 37/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.409
7 - accuracy: 0.8327
Epoch 38/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.409
7 - accuracy: 0.8323
Epoch 39/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.409
4 - accuracy: 0.8310
Epoch 40/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.409
3 - accuracy: 0.8327
Epoch 41/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.409
0 - accuracy: 0.8312
Epoch 42/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.409
0 - accuracy: 0.8330
Epoch 43/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.409
0 - accuracy: 0.8335
Epoch 44/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.409
0 - accuracy: 0.8327
Epoch 45/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.408
2 - accuracy: 0.8322
Epoch 46/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.408
6 - accuracy: 0.8315
Epoch 47/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.408
1 - accuracy: 0.8313
Epoch 48/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.408
8 - accuracy: 0.8313
Epoch 49/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.408
1 - accuracy: 0.8318
```

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Epoch 50/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.408
3 - accuracy: 0.8327
Epoch 51/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.407
7 - accuracy: 0.8322
Epoch 52/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.407
8 - accuracy: 0.8315
Epoch 53/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.407
8 - accuracy: 0.8323
Epoch 54/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.407
7 - accuracy: 0.8312
Epoch 55/500
6030/6030 [=====] - ETA: 0s - loss: 0.4069 - accuracy: 0.83 - 1s 181us/sample - loss: 0.4080 - accuracy: 0.8308
Epoch 56/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.407
5 - accuracy: 0.8325
Epoch 57/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.407
7 - accuracy: 0.8337
Epoch 58/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.407
5 - accuracy: 0.8330
Epoch 59/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.407
5 - accuracy: 0.8310
Epoch 60/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.407
4 - accuracy: 0.8312
Epoch 61/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.407
0 - accuracy: 0.8327
Epoch 62/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.407
3 - accuracy: 0.8323
Epoch 63/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.407
3 - accuracy: 0.8315
Epoch 64/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.406
9 - accuracy: 0.8318
Epoch 65/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.406
7 - accuracy: 0.8312
Epoch 66/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.406
5 - accuracy: 0.8332
Epoch 67/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.407
1 - accuracy: 0.8300
Epoch 68/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.406
8 - accuracy: 0.8325
Epoch 69/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.406
7 - accuracy: 0.8323
Epoch 70/500
```

```
6030/6030 [=====] - 1s 185us/sample - loss: 0.406
8 - accuracy: 0.8310
Epoch 71/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.406
4 - accuracy: 0.8328
Epoch 72/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.406
3 - accuracy: 0.8320
Epoch 73/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.406
1 - accuracy: 0.8323
Epoch 74/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.406
8 - accuracy: 0.8312
Epoch 75/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.406
1 - accuracy: 0.8325
Epoch 76/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.406
3 - accuracy: 0.8327
Epoch 77/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.406
3 - accuracy: 0.8322
Epoch 78/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.405
9 - accuracy: 0.8330
Epoch 79/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.406
1 - accuracy: 0.8332
Epoch 80/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.405
6 - accuracy: 0.8320
Epoch 81/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.406
0 - accuracy: 0.8317
Epoch 82/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.405
9 - accuracy: 0.8323
Epoch 83/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.405
9 - accuracy: 0.8317
Epoch 84/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.405
7 - accuracy: 0.8320
Epoch 85/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.405
8 - accuracy: 0.8332
Epoch 86/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.406
1 - accuracy: 0.8317
Epoch 87/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.406
0 - accuracy: 0.8325
Epoch 88/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.405
6 - accuracy: 0.8317
Epoch 89/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.405
6 - accuracy: 0.8328
Epoch 90/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.405
```

```
8 - accuracy: 0.8322
Epoch 91/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.405
8 - accuracy: 0.8315
Epoch 92/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.405
6 - accuracy: 0.8308
Epoch 93/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.405
8 - accuracy: 0.8315
Epoch 94/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.405
5 - accuracy: 0.8312
Epoch 95/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.405
3 - accuracy: 0.8332
Epoch 96/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.405
4 - accuracy: 0.8328
Epoch 97/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.406
1 - accuracy: 0.8308
Epoch 98/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.405
4 - accuracy: 0.8313
Epoch 99/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.405
5 - accuracy: 0.8322
Epoch 100/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.405
2 - accuracy: 0.8322
Epoch 101/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.405
1 - accuracy: 0.8320
Epoch 102/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.405
1 - accuracy: 0.8310
Epoch 103/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.405
2 - accuracy: 0.8312
Epoch 104/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.405
0 - accuracy: 0.8323 - loss: 0.4069 - accuracy:
Epoch 105/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.405
3 - accuracy: 0.8327
Epoch 106/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.404
9 - accuracy: 0.8327
Epoch 107/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.405
1 - accuracy: 0.8302
Epoch 108/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.405
3 - accuracy: 0.8327
Epoch 109/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.404
9 - accuracy: 0.8323
Epoch 110/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.405
1 - accuracy: 0.8323
```

Epoch 111/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.405  
1 - accuracy: 0.8327  
Epoch 112/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.405  
2 - accuracy: 0.8320  
Epoch 113/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.404  
9 - accuracy: 0.8328  
Epoch 114/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.404  
9 - accuracy: 0.8312  
Epoch 115/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.404  
9 - accuracy: 0.8320  
Epoch 116/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.404  
9 - accuracy: 0.8317  
Epoch 117/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.404  
8 - accuracy: 0.8322  
Epoch 118/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.405  
1 - accuracy: 0.8315  
Epoch 119/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.405  
1 - accuracy: 0.8312  
Epoch 120/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.405  
2 - accuracy: 0.8303  
Epoch 121/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.404  
9 - accuracy: 0.8328  
Epoch 122/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.405  
1 - accuracy: 0.8318  
Epoch 123/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.404  
6 - accuracy: 0.8308  
Epoch 124/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.405  
0 - accuracy: 0.8328  
Epoch 125/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.405  
0 - accuracy: 0.8320  
Epoch 126/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.404  
7 - accuracy: 0.8333  
Epoch 127/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.404  
6 - accuracy: 0.8315  
Epoch 128/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.404  
8 - accuracy: 0.8327  
Epoch 129/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.404  
8 - accuracy: 0.8315  
Epoch 130/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.404  
7 - accuracy: 0.8330  
Epoch 131/500

```
6030/6030 [=====] - 1s 175us/sample - loss: 0.404
9 - accuracy: 0.8312
Epoch 132/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.405
0 - accuracy: 0.8320
Epoch 133/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.404
4 - accuracy: 0.8323
Epoch 134/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.404
9 - accuracy: 0.8315
Epoch 135/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.405
0 - accuracy: 0.8310
Epoch 136/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.404
8 - accuracy: 0.8323
Epoch 137/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.404
4 - accuracy: 0.8328
Epoch 138/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.404
8 - accuracy: 0.8315
Epoch 139/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.404
6 - accuracy: 0.8332
Epoch 140/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.404
5 - accuracy: 0.8323
Epoch 141/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.404
5 - accuracy: 0.8320
Epoch 142/500
6030/6030 [=====] - ETA: 0s - loss: 0.4054 - accuracy: 0.83 - 1s 192us/sample - loss: 0.4051 - accuracy: 0.8318
Epoch 143/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.404
4 - accuracy: 0.8320
Epoch 144/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.405
0 - accuracy: 0.8317
Epoch 145/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.404
4 - accuracy: 0.8320
Epoch 146/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.404
5 - accuracy: 0.8315
Epoch 147/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.404
3 - accuracy: 0.8305
Epoch 148/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.404
7 - accuracy: 0.8315
Epoch 149/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.404
6 - accuracy: 0.8312
Epoch 150/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.404
9 - accuracy: 0.8328
Epoch 151/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.404
```

```
3 - accuracy: 0.8322
Epoch 152/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.404
7 - accuracy: 0.8320
Epoch 153/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.404
6 - accuracy: 0.8315
Epoch 154/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.404
7 - accuracy: 0.8317
Epoch 155/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.404
6 - accuracy: 0.8320
Epoch 156/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.404
7 - accuracy: 0.8323
Epoch 157/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.405
0 - accuracy: 0.8315
Epoch 158/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.404
4 - accuracy: 0.8322
Epoch 159/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.404
5 - accuracy: 0.8325
Epoch 160/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.404
2 - accuracy: 0.8330
Epoch 161/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.404
3 - accuracy: 0.8330
Epoch 162/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.404
6 - accuracy: 0.8323
Epoch 163/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.404
4 - accuracy: 0.8317
Epoch 164/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.404
7 - accuracy: 0.8320
Epoch 165/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.404
2 - accuracy: 0.8315
Epoch 166/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.404
7 - accuracy: 0.8313
Epoch 167/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.404
4 - accuracy: 0.8303
Epoch 168/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.404
5 - accuracy: 0.8337
Epoch 169/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.404
8 - accuracy: 0.8308
Epoch 170/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.404
2 - accuracy: 0.8318
Epoch 171/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.404
2 - accuracy: 0.8315
```



Epoch 172/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.404  
7 - accuracy: 0.8320  
Epoch 173/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.404  
4 - accuracy: 0.8328  
Epoch 174/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.404  
6 - accuracy: 0.8322  
Epoch 175/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.404  
3 - accuracy: 0.8328  
Epoch 176/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.404  
3 - accuracy: 0.8318  
Epoch 177/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.404  
7 - accuracy: 0.8332  
Epoch 178/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.404  
1 - accuracy: 0.8302  
Epoch 179/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.404  
3 - accuracy: 0.8318  
Epoch 180/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.404  
0 - accuracy: 0.8338  
Epoch 181/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.404  
2 - accuracy: 0.8322  
Epoch 182/500  
6030/6030 [=====] - 1s 235us/sample - loss: 0.404  
1 - accuracy: 0.8335  
Epoch 183/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.404  
0 - accuracy: 0.8325  
Epoch 184/500  
6030/6030 [=====] - ETA: 0s - loss: 0.4046 - accuracy: 0.83 - 1s 175us/sample - loss: 0.4041 - accuracy: 0.8332  
Epoch 185/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.404  
1 - accuracy: 0.8328  
Epoch 186/500  
6030/6030 [=====] - 1s 236us/sample - loss: 0.404  
2 - accuracy: 0.8332  
Epoch 187/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.404  
1 - accuracy: 0.8327  
Epoch 188/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.403  
7 - accuracy: 0.8322  
Epoch 189/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.404  
2 - accuracy: 0.8318  
Epoch 190/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.404  
1 - accuracy: 0.8323  
Epoch 191/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.404  
4 - accuracy: 0.8328  
Epoch 192/500

```
6030/6030 [=====] - 1s 172us/sample - loss: 0.404
2 - accuracy: 0.8313
Epoch 193/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.404
0 - accuracy: 0.8322
Epoch 194/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.403
9 - accuracy: 0.8325
Epoch 195/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.404
3 - accuracy: 0.8322
Epoch 196/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.403
9 - accuracy: 0.8323
Epoch 197/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.403
2 - accuracy: 0.8340
Epoch 198/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.403
9 - accuracy: 0.8330
Epoch 199/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.403
9 - accuracy: 0.8323
Epoch 200/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.404
2 - accuracy: 0.8320
Epoch 201/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.403
8 - accuracy: 0.8343
Epoch 202/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.404
0 - accuracy: 0.8323
Epoch 203/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.403
9 - accuracy: 0.8330
Epoch 204/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.404
0 - accuracy: 0.8323
Epoch 205/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.403
9 - accuracy: 0.8317
Epoch 206/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.404
0 - accuracy: 0.8320
Epoch 207/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.403
9 - accuracy: 0.8328
Epoch 208/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.403
9 - accuracy: 0.8313
Epoch 209/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.404
0 - accuracy: 0.8320
Epoch 210/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.403
8 - accuracy: 0.8337
Epoch 211/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.404
3 - accuracy: 0.8340
Epoch 212/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.403
```

```
7 - accuracy: 0.8317
Epoch 213/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.404
2 - accuracy: 0.8332
Epoch 214/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.404
0 - accuracy: 0.8332 - loss: 0.4007 - accu
Epoch 215/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.403
9 - accuracy: 0.8335
Epoch 216/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.403
9 - accuracy: 0.8330
Epoch 217/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.404
4 - accuracy: 0.8313
Epoch 218/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.403
8 - accuracy: 0.8330
Epoch 219/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.403
7 - accuracy: 0.8322
Epoch 220/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.403
7 - accuracy: 0.8342
Epoch 221/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.403
7 - accuracy: 0.8333
Epoch 222/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.403
8 - accuracy: 0.8328
Epoch 223/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.403
9 - accuracy: 0.8328
Epoch 224/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.404
0 - accuracy: 0.8327
Epoch 225/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.403
6 - accuracy: 0.8325
Epoch 226/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.404
2 - accuracy: 0.8332
Epoch 227/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.404
2 - accuracy: 0.8327
Epoch 228/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.403
4 - accuracy: 0.8332
Epoch 229/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.403
8 - accuracy: 0.8335
Epoch 230/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.404
0 - accuracy: 0.8332
Epoch 231/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.403
9 - accuracy: 0.8328
Epoch 232/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.403
9 - accuracy: 0.8328
```

Epoch 233/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.403  
9 - accuracy: 0.8318  
Epoch 234/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.404  
0 - accuracy: 0.8317  
Epoch 235/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.404  
0 - accuracy: 0.8328  
Epoch 236/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.403  
5 - accuracy: 0.8328  
Epoch 237/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.403  
6 - accuracy: 0.8322  
Epoch 238/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.404  
4 - accuracy: 0.8337  
Epoch 239/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.403  
5 - accuracy: 0.8332  
Epoch 240/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.403  
8 - accuracy: 0.8333  
Epoch 241/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.403  
4 - accuracy: 0.8330  
Epoch 242/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.403  
8 - accuracy: 0.8313  
Epoch 243/500  
6030/6030 [=====] - ETA: 0s - loss: 0.4013 - accuracy: 0.83 - 1s 188us/sample - loss: 0.4034 - accuracy: 0.8327  
Epoch 244/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.403  
9 - accuracy: 0.8337  
Epoch 245/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.404  
0 - accuracy: 0.8325  
Epoch 246/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.404  
1 - accuracy: 0.8320  
Epoch 247/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.403  
6 - accuracy: 0.8322  
Epoch 248/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.403  
9 - accuracy: 0.8338  
Epoch 249/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.403  
9 - accuracy: 0.8328  
Epoch 250/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.403  
8 - accuracy: 0.8320  
Epoch 251/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.403  
8 - accuracy: 0.8320  
Epoch 252/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.403  
7 - accuracy: 0.8333  
Epoch 253/500

```
6030/6030 [=====] - 1s 183us/sample - loss: 0.403
6 - accuracy: 0.8315
Epoch 254/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.404
0 - accuracy: 0.8325
Epoch 255/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.404
1 - accuracy: 0.8328
Epoch 256/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.404
0 - accuracy: 0.8338
Epoch 257/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.404
0 - accuracy: 0.8322
Epoch 258/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.403
4 - accuracy: 0.8338
Epoch 259/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.403
9 - accuracy: 0.8332
Epoch 260/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.403
4 - accuracy: 0.8332
Epoch 261/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.403
8 - accuracy: 0.8348
Epoch 262/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.403
5 - accuracy: 0.8320
Epoch 263/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.404
0 - accuracy: 0.8323
Epoch 264/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.403
6 - accuracy: 0.8320
Epoch 265/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.403
7 - accuracy: 0.8335
Epoch 266/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.404
0 - accuracy: 0.8335
Epoch 267/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.403
7 - accuracy: 0.8325
Epoch 268/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.403
5 - accuracy: 0.8335
Epoch 269/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.403
7 - accuracy: 0.8322
Epoch 270/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.403
7 - accuracy: 0.8330
Epoch 271/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.404
0 - accuracy: 0.8325
Epoch 272/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.403
8 - accuracy: 0.8337
Epoch 273/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.403
```

```
6 - accuracy: 0.8330
Epoch 274/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.403
6 - accuracy: 0.8335
Epoch 275/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.403
9 - accuracy: 0.8322
Epoch 276/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.403
9 - accuracy: 0.8320
Epoch 277/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.403
5 - accuracy: 0.8337
Epoch 278/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.403
9 - accuracy: 0.8332
Epoch 279/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.403
9 - accuracy: 0.8330
Epoch 280/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.403
5 - accuracy: 0.8315
Epoch 281/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.404
1 - accuracy: 0.8318
Epoch 282/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.403
5 - accuracy: 0.8317
Epoch 283/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.403
3 - accuracy: 0.8343
Epoch 284/500
6030/6030 [=====] - 1s 233us/sample - loss: 0.403
7 - accuracy: 0.8337
Epoch 285/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.403
9 - accuracy: 0.8342
Epoch 286/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.404
0 - accuracy: 0.8328
Epoch 287/500
6030/6030 [=====] - 1s 232us/sample - loss: 0.403
8 - accuracy: 0.8332
Epoch 288/500
6030/6030 [=====] - 1s 231us/sample - loss: 0.403
8 - accuracy: 0.8328
Epoch 289/500
6030/6030 [=====] - 2s 252us/sample - loss: 0.403
9 - accuracy: 0.8322
Epoch 290/500
6030/6030 [=====] - 1s 233us/sample - loss: 0.403
7 - accuracy: 0.8332
Epoch 291/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.403
8 - accuracy: 0.8315
Epoch 292/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.403
2 - accuracy: 0.8323
Epoch 293/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.404
4 - accuracy: 0.8328
```

Epoch 294/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.403  
4 - accuracy: 0.8325  
Epoch 295/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.403  
7 - accuracy: 0.8328  
Epoch 296/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.403  
9 - accuracy: 0.8322  
Epoch 297/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.403  
8 - accuracy: 0.8340  
Epoch 298/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.403  
7 - accuracy: 0.8335  
Epoch 299/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.403  
5 - accuracy: 0.8332  
Epoch 300/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.403  
9 - accuracy: 0.8335  
Epoch 301/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.403  
5 - accuracy: 0.8335  
Epoch 302/500  
6030/6030 [=====] - 1s 234us/sample - loss: 0.403  
7 - accuracy: 0.8335  
Epoch 303/500  
6030/6030 [=====] - 1s 218us/sample - loss: 0.403  
7 - accuracy: 0.8338  
Epoch 304/500  
6030/6030 [=====] - 2s 268us/sample - loss: 0.403  
7 - accuracy: 0.8338  
Epoch 305/500  
6030/6030 [=====] - 1s 232us/sample - loss: 0.403  
9 - accuracy: 0.8327  
Epoch 306/500  
6030/6030 [=====] - 1s 237us/sample - loss: 0.403  
9 - accuracy: 0.8330  
Epoch 307/500  
6030/6030 [=====] - 1s 212us/sample - loss: 0.403  
6 - accuracy: 0.8322  
Epoch 308/500  
6030/6030 [=====] - 1s 242us/sample - loss: 0.404  
0 - accuracy: 0.8338  
Epoch 309/500  
6030/6030 [=====] - 1s 246us/sample - loss: 0.403  
8 - accuracy: 0.8332  
Epoch 310/500  
6030/6030 [=====] - 1s 228us/sample - loss: 0.403  
7 - accuracy: 0.8340  
Epoch 311/500  
6030/6030 [=====] - 2s 252us/sample - loss: 0.403  
6 - accuracy: 0.8327  
Epoch 312/500  
6030/6030 [=====] - 1s 244us/sample - loss: 0.403  
6 - accuracy: 0.8330  
Epoch 313/500  
6030/6030 [=====] - 1s 228us/sample - loss: 0.404  
0 - accuracy: 0.8330  
Epoch 314/500

```
6030/6030 [=====] - 1s 208us/sample - loss: 0.403
7 - accuracy: 0.8342
Epoch 315/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.403
9 - accuracy: 0.8332
Epoch 316/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.403
8 - accuracy: 0.8327
Epoch 317/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.403
4 - accuracy: 0.8332
Epoch 318/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.403
9 - accuracy: 0.8353
Epoch 319/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.403
3 - accuracy: 0.8342
Epoch 320/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.403
8 - accuracy: 0.8327
Epoch 321/500
6030/6030 [=====] - 2s 265us/sample - loss: 0.403
6 - accuracy: 0.8332
Epoch 322/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.403
7 - accuracy: 0.8338
Epoch 323/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.403
4 - accuracy: 0.8325
Epoch 324/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.403
6 - accuracy: 0.8350
Epoch 325/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.403
8 - accuracy: 0.8317
Epoch 326/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.403
4 - accuracy: 0.8350
Epoch 327/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.403
7 - accuracy: 0.8337
Epoch 328/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.403
7 - accuracy: 0.8340
Epoch 329/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.403
6 - accuracy: 0.8343
Epoch 330/500
6030/6030 [=====] - 1s 224us/sample - loss: 0.403
7 - accuracy: 0.8333
Epoch 331/500
6030/6030 [=====] - 2s 253us/sample - loss: 0.403
5 - accuracy: 0.8337
Epoch 332/500
6030/6030 [=====] - 2s 273us/sample - loss: 0.403
8 - accuracy: 0.8340
Epoch 333/500
6030/6030 [=====] - 2s 267us/sample - loss: 0.403
6 - accuracy: 0.8350
Epoch 334/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.403
```



```
5 - accuracy: 0.8330
Epoch 335/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.403
7 - accuracy: 0.8330
Epoch 336/500
6030/6030 [=====] - 2s 261us/sample - loss: 0.403
8 - accuracy: 0.8337
Epoch 337/500
6030/6030 [=====] - 1s 248us/sample - loss: 0.403
9 - accuracy: 0.8340
Epoch 338/500
6030/6030 [=====] - 1s 238us/sample - loss: 0.403
5 - accuracy: 0.8338
Epoch 339/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.403
2 - accuracy: 0.8352
Epoch 340/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.404
1 - accuracy: 0.8337
Epoch 341/500
6030/6030 [=====] - 2s 259us/sample - loss: 0.403
6 - accuracy: 0.8340
Epoch 342/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.403
3 - accuracy: 0.8322
Epoch 343/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.403
6 - accuracy: 0.8323
Epoch 344/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.403
6 - accuracy: 0.8343
Epoch 345/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.403
3 - accuracy: 0.8345
Epoch 346/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.403
3 - accuracy: 0.8327
Epoch 347/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.403
7 - accuracy: 0.8333
Epoch 348/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.403
5 - accuracy: 0.8327
Epoch 349/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.403
5 - accuracy: 0.8325
Epoch 350/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.403
7 - accuracy: 0.8338
Epoch 351/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.403
6 - accuracy: 0.8320
Epoch 352/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.403
9 - accuracy: 0.8325
Epoch 353/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.403
8 - accuracy: 0.8322
Epoch 354/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.403
7 - accuracy: 0.8333
```

Epoch 355/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.403  
8 - accuracy: 0.8347  
Epoch 356/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.403  
6 - accuracy: 0.8348  
Epoch 357/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.403  
5 - accuracy: 0.8342  
Epoch 358/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.404  
0 - accuracy: 0.8335  
Epoch 359/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.403  
9 - accuracy: 0.8332  
Epoch 360/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.403  
8 - accuracy: 0.8332  
Epoch 361/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.403  
8 - accuracy: 0.8330  
Epoch 362/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.403  
8 - accuracy: 0.8338  
Epoch 363/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.403  
9 - accuracy: 0.8325  
Epoch 364/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.403  
5 - accuracy: 0.8328  
Epoch 365/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.403  
7 - accuracy: 0.8338  
Epoch 366/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.403  
6 - accuracy: 0.8332  
Epoch 367/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.403  
3 - accuracy: 0.8338  
Epoch 368/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.403  
5 - accuracy: 0.8335  
Epoch 369/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.403  
7 - accuracy: 0.8328  
Epoch 370/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.403  
3 - accuracy: 0.8352  
Epoch 371/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.403  
5 - accuracy: 0.8315  
Epoch 372/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.403  
4 - accuracy: 0.8313  
Epoch 373/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.403  
4 - accuracy: 0.8345  
Epoch 374/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.403  
1 - accuracy: 0.8327  
Epoch 375/500

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6030/6030 [=====] - 1s 185us/sample - loss: 0.403
4 - accuracy: 0.8332
Epoch 376/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.403
6 - accuracy: 0.8323
Epoch 377/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.404
0 - accuracy: 0.8328
Epoch 378/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.403
4 - accuracy: 0.8323
Epoch 379/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.403
7 - accuracy: 0.8337
Epoch 380/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.403
7 - accuracy: 0.8335
Epoch 381/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.403
7 - accuracy: 0.8333
Epoch 382/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.403
3 - accuracy: 0.8332
Epoch 383/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.403
5 - accuracy: 0.8327
Epoch 384/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.403
4 - accuracy: 0.8332
Epoch 385/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.403
4 - accuracy: 0.8328
Epoch 386/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.403
6 - accuracy: 0.8338
Epoch 387/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.403
6 - accuracy: 0.8330
Epoch 388/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.403
9 - accuracy: 0.8352
Epoch 389/500
6030/6030 [=====] - ETA: 0s - loss: 0.4026 - accuracy: 0.83 - 1s 197us/sample - loss: 0.4033 - accuracy: 0.8308
Epoch 390/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.403
5 - accuracy: 0.8338
Epoch 391/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.403
4 - accuracy: 0.8323
Epoch 392/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.403
3 - accuracy: 0.8322
Epoch 393/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.403
8 - accuracy: 0.8335
Epoch 394/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.403
4 - accuracy: 0.8328
Epoch 395/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.403
```

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2 - accuracy: 0.8312
Epoch 396/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.403
6 - accuracy: 0.8342
Epoch 397/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.402
8 - accuracy: 0.8342
Epoch 398/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.403
5 - accuracy: 0.8318
Epoch 399/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.403
4 - accuracy: 0.8333
Epoch 400/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.403
6 - accuracy: 0.8330
Epoch 401/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.403
5 - accuracy: 0.8335
Epoch 402/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.404
0 - accuracy: 0.8327
Epoch 403/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.403
4 - accuracy: 0.8348
Epoch 404/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.403
4 - accuracy: 0.8327
Epoch 405/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.403
4 - accuracy: 0.8328
Epoch 406/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.403
6 - accuracy: 0.8333
Epoch 407/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.403
8 - accuracy: 0.8320
Epoch 408/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.403
7 - accuracy: 0.8338
Epoch 409/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.403
4 - accuracy: 0.8322
Epoch 410/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.403
8 - accuracy: 0.8322
Epoch 411/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.403
6 - accuracy: 0.8340
Epoch 412/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.403
7 - accuracy: 0.8332
Epoch 413/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.403
7 - accuracy: 0.8333
Epoch 414/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.403
1 - accuracy: 0.8342
Epoch 415/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.403
5 - accuracy: 0.8333
```

Epoch 416/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.403  
5 - accuracy: 0.8335  
Epoch 417/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.403  
7 - accuracy: 0.8330  
Epoch 418/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.403  
6 - accuracy: 0.8327  
Epoch 419/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.403  
4 - accuracy: 0.8327  
Epoch 420/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.403  
8 - accuracy: 0.8333  
Epoch 421/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.404  
1 - accuracy: 0.8320  
Epoch 422/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.403  
5 - accuracy: 0.8342  
Epoch 423/500  
6030/6030 [=====] - 2s 253us/sample - loss: 0.403  
7 - accuracy: 0.8317  
Epoch 424/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.403  
7 - accuracy: 0.8327  
Epoch 425/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.403  
5 - accuracy: 0.8325  
Epoch 426/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.403  
6 - accuracy: 0.8338  
Epoch 427/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.403  
5 - accuracy: 0.8333  
Epoch 428/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.403  
4 - accuracy: 0.8348  
Epoch 429/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.403  
7 - accuracy: 0.8328  
Epoch 430/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.403  
7 - accuracy: 0.8333  
Epoch 431/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.403  
5 - accuracy: 0.8342  
Epoch 432/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.403  
6 - accuracy: 0.8328  
Epoch 433/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.403  
6 - accuracy: 0.8327  
Epoch 434/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.403  
7 - accuracy: 0.8325  
Epoch 435/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.403  
5 - accuracy: 0.8333  
Epoch 436/500

```
6030/6030 [=====] - 1s 182us/sample - loss: 0.403
5 - accuracy: 0.8335
Epoch 437/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.403
5 - accuracy: 0.8340
Epoch 438/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.403
3 - accuracy: 0.8338
Epoch 439/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.403
3 - accuracy: 0.8328
Epoch 440/500
6030/6030 [=====] - 1s 224us/sample - loss: 0.403
5 - accuracy: 0.8333
Epoch 441/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.403
2 - accuracy: 0.8327
Epoch 442/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.403
9 - accuracy: 0.8340
Epoch 443/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.403
9 - accuracy: 0.8313
Epoch 444/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.403
6 - accuracy: 0.8338
Epoch 445/500
6030/6030 [=====] - 1s 247us/sample - loss: 0.403
4 - accuracy: 0.8330
Epoch 446/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.403
1 - accuracy: 0.8347
Epoch 447/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.403
3 - accuracy: 0.8327
Epoch 448/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.403
6 - accuracy: 0.8323
Epoch 449/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.403
2 - accuracy: 0.8333
Epoch 450/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.403
7 - accuracy: 0.8325
Epoch 451/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.403
6 - accuracy: 0.8330
Epoch 452/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.403
7 - accuracy: 0.8322
Epoch 453/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.403
9 - accuracy: 0.8332
Epoch 454/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.403
5 - accuracy: 0.8337
Epoch 455/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.403
4 - accuracy: 0.8337
Epoch 456/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.403
```

```
3 - accuracy: 0.8328
Epoch 457/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.404
0 - accuracy: 0.8333
Epoch 458/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.403
3 - accuracy: 0.8325
Epoch 459/500
6030/6030 [=====] - 1s 236us/sample - loss: 0.403
4 - accuracy: 0.8325
Epoch 460/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.403
8 - accuracy: 0.8325
Epoch 461/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.403
8 - accuracy: 0.8340
Epoch 462/500
6030/6030 [=====] - 1s 246us/sample - loss: 0.403
3 - accuracy: 0.8332
Epoch 463/500
6030/6030 [=====] - ETA: 0s - loss: 0.4037 - accuracy: 0.83 - 1s 177us/sample - loss: 0.4034 - accuracy: 0.8332
Epoch 464/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.403
4 - accuracy: 0.8328
Epoch 465/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.403
0 - accuracy: 0.8313
Epoch 466/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.403
7 - accuracy: 0.8330
Epoch 467/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.403
7 - accuracy: 0.8312
Epoch 468/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.403
6 - accuracy: 0.8323
Epoch 469/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.403
5 - accuracy: 0.8332
Epoch 470/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.403
5 - accuracy: 0.8342
Epoch 471/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.403
6 - accuracy: 0.8322
Epoch 472/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.403
2 - accuracy: 0.8342
Epoch 473/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.403
4 - accuracy: 0.8320
Epoch 474/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.403
5 - accuracy: 0.8338
Epoch 475/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.403
2 - accuracy: 0.8337
Epoch 476/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.404
1 - accuracy: 0.8333
```

Epoch 477/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.403  
5 - accuracy: 0.8338  
Epoch 478/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.403  
9 - accuracy: 0.8340  
Epoch 479/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.403  
5 - accuracy: 0.8335  
Epoch 480/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.403  
5 - accuracy: 0.8332  
Epoch 481/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.403  
0 - accuracy: 0.8340  
Epoch 482/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.404  
2 - accuracy: 0.8340  
Epoch 483/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.403  
2 - accuracy: 0.8328  
Epoch 484/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.403  
0 - accuracy: 0.8332  
Epoch 485/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.403  
4 - accuracy: 0.8340  
Epoch 486/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.403  
8 - accuracy: 0.8330  
Epoch 487/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.403  
5 - accuracy: 0.8330  
Epoch 488/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.403  
1 - accuracy: 0.8332  
Epoch 489/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.403  
4 - accuracy: 0.8327  
Epoch 490/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.403  
7 - accuracy: 0.8332  
Epoch 491/500  
6030/6030 [=====] - 1s 227us/sample - loss: 0.403  
7 - accuracy: 0.8328  
Epoch 492/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.403  
4 - accuracy: 0.8330  
Epoch 493/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.403  
6 - accuracy: 0.8332  
Epoch 494/500  
6030/6030 [=====] - 1s 219us/sample - loss: 0.403  
2 - accuracy: 0.8325  
Epoch 495/500  
6030/6030 [=====] - 1s 214us/sample - loss: 0.403  
0 - accuracy: 0.8333  
Epoch 496/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.403  
6 - accuracy: 0.8343  
Epoch 497/500



```
6030/6030 [=====] - 1s 184us/sample - loss: 0.403
2 - accuracy: 0.8330
Epoch 498/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.403
3 - accuracy: 0.8322
Epoch 499/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.403
4 - accuracy: 0.8328
Epoch 500/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.403
5 - accuracy: 0.8340
Train on 6030 samples
Epoch 1/500
6030/6030 [=====] - 2s 250us/sample - loss: 0.584
7 - accuracy: 0.7897
Epoch 2/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.446
0 - accuracy: 0.7919
Epoch 3/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.438
3 - accuracy: 0.7919
Epoch 4/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.435
3 - accuracy: 0.7919
Epoch 5/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.432
1 - accuracy: 0.7919
Epoch 6/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.430
0 - accuracy: 0.7919 - loss: 0.4270 - accu
Epoch 7/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.427
6 - accuracy: 0.7919
Epoch 8/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.425
7 - accuracy: 0.8060
Epoch 9/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.424
1 - accuracy: 0.8174
Epoch 10/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.422
7 - accuracy: 0.8224
Epoch 11/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.421
1 - accuracy: 0.8250
Epoch 12/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.421
1 - accuracy: 0.8237
Epoch 13/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.419
6 - accuracy: 0.8272
Epoch 14/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.418
6 - accuracy: 0.8285
Epoch 15/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.418
3 - accuracy: 0.8287
Epoch 16/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.417
2 - accuracy: 0.8307
Epoch 17/500
```

```
6030/6030 [=====] - 1s 174us/sample - loss: 0.416
6 - accuracy: 0.8318
Epoch 18/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.416
0 - accuracy: 0.8308
Epoch 19/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.415
4 - accuracy: 0.8320
Epoch 20/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.414
7 - accuracy: 0.8320
Epoch 21/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.414
8 - accuracy: 0.8330
Epoch 22/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.413
9 - accuracy: 0.8317
Epoch 23/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.413
8 - accuracy: 0.8332
Epoch 24/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.413
3 - accuracy: 0.8322
Epoch 25/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.413
2 - accuracy: 0.8332
Epoch 26/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.412
4 - accuracy: 0.8325
Epoch 27/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.412
4 - accuracy: 0.8322
Epoch 28/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.412
1 - accuracy: 0.8328
Epoch 29/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.412
2 - accuracy: 0.8328
Epoch 30/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.411
5 - accuracy: 0.8320
Epoch 31/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.411
6 - accuracy: 0.8320
Epoch 32/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.411
1 - accuracy: 0.8332
Epoch 33/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.411
1 - accuracy: 0.8318
Epoch 34/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.410
7 - accuracy: 0.8318
Epoch 35/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.410
6 - accuracy: 0.8313
Epoch 36/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.410
5 - accuracy: 0.8317
Epoch 37/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.410
```

```
8 - accuracy: 0.8325
Epoch 38/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.409
8 - accuracy: 0.8327
Epoch 39/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.409
6 - accuracy: 0.8325
Epoch 40/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.409
8 - accuracy: 0.8327
Epoch 41/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.409
8 - accuracy: 0.8332
Epoch 42/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.409
4 - accuracy: 0.8325
Epoch 43/500
6030/6030 [=====] - 2s 389us/sample - loss: 0.409
2 - accuracy: 0.8330
Epoch 44/500
6030/6030 [=====] - 2s 274us/sample - loss: 0.409
3 - accuracy: 0.8322
Epoch 45/500
6030/6030 [=====] - 2s 276us/sample - loss: 0.409
1 - accuracy: 0.8322
Epoch 46/500
6030/6030 [=====] - 2s 289us/sample - loss: 0.409
0 - accuracy: 0.8322
Epoch 47/500
6030/6030 [=====] - 2s 338us/sample - loss: 0.408
8 - accuracy: 0.8315
Epoch 48/500
6030/6030 [=====] - 2s 271us/sample - loss: 0.408
9 - accuracy: 0.8330
Epoch 49/500
6030/6030 [=====] - 2s 283us/sample - loss: 0.408
9 - accuracy: 0.8323
Epoch 50/500
6030/6030 [=====] - 2s 301us/sample - loss: 0.408
6 - accuracy: 0.8317
Epoch 51/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.408
0 - accuracy: 0.8312
Epoch 52/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.407
8 - accuracy: 0.8325
Epoch 53/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.408
1 - accuracy: 0.8318
Epoch 54/500
6030/6030 [=====] - 1s 246us/sample - loss: 0.408
2 - accuracy: 0.8320
Epoch 55/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.407
6 - accuracy: 0.8328
Epoch 56/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.407
7 - accuracy: 0.8315
Epoch 57/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.408
0 - accuracy: 0.8325
```

Epoch 58/500  
6030/6030 [=====] - 1s 240us/sample - loss: 0.407  
3 - accuracy: 0.8322

Epoch 59/500  
6030/6030 [=====] - 1s 248us/sample - loss: 0.407  
4 - accuracy: 0.8313

Epoch 60/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.407  
2 - accuracy: 0.8328

Epoch 61/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.406  
8 - accuracy: 0.8318

Epoch 62/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.406  
3 - accuracy: 0.8313

Epoch 63/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.406  
0 - accuracy: 0.8332

Epoch 64/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.406  
2 - accuracy: 0.8320

Epoch 65/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.405  
7 - accuracy: 0.8315

Epoch 66/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.405  
3 - accuracy: 0.8322

Epoch 67/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.405  
2 - accuracy: 0.8325

Epoch 68/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.404  
5 - accuracy: 0.8330

Epoch 69/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.404  
2 - accuracy: 0.8317

Epoch 70/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.403  
8 - accuracy: 0.8310

Epoch 71/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.403  
5 - accuracy: 0.8320

Epoch 72/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.403  
1 - accuracy: 0.8328

Epoch 73/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.402  
7 - accuracy: 0.8338

Epoch 74/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.402  
3 - accuracy: 0.8345

Epoch 75/500  
6030/6030 [=====] - 1s 221us/sample - loss: 0.402  
1 - accuracy: 0.8335 - loss: 0.4010 -

Epoch 76/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.401  
4 - accuracy: 0.8333

Epoch 77/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.401  
8 - accuracy: 0.8333

Epoch 78/500

```
6030/6030 [=====] - 1s 174us/sample - loss: 0.401
4 - accuracy: 0.8352
Epoch 79/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.401
3 - accuracy: 0.8338
Epoch 80/500
6030/6030 [=====] - 1s 240us/sample - loss: 0.400
8 - accuracy: 0.8338
Epoch 81/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.400
8 - accuracy: 0.8340
Epoch 82/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.400
5 - accuracy: 0.8360
Epoch 83/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.400
5 - accuracy: 0.8332
Epoch 84/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.400
4 - accuracy: 0.8337
Epoch 85/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.400
0 - accuracy: 0.8352
Epoch 86/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.399
8 - accuracy: 0.8335
Epoch 87/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.399
4 - accuracy: 0.8340
Epoch 88/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.399
4 - accuracy: 0.8348
Epoch 89/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.399
5 - accuracy: 0.8358
Epoch 90/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.399
0 - accuracy: 0.8337
Epoch 91/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.398
7 - accuracy: 0.8367
Epoch 92/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.398
9 - accuracy: 0.8358
Epoch 93/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.398
6 - accuracy: 0.8353
Epoch 94/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.399
1 - accuracy: 0.8360
Epoch 95/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.398
3 - accuracy: 0.8353
Epoch 96/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.398
0 - accuracy: 0.8343
Epoch 97/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.397
8 - accuracy: 0.8352
Epoch 98/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.398
```

```
0 - accuracy: 0.8360
Epoch 99/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.397
9 - accuracy: 0.8355
Epoch 100/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.397
7 - accuracy: 0.8365
Epoch 101/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.397
8 - accuracy: 0.8376
Epoch 102/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.397
4 - accuracy: 0.8370
Epoch 103/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.397
2 - accuracy: 0.8352
Epoch 104/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.396
8 - accuracy: 0.8370
Epoch 105/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.396
9 - accuracy: 0.8353
Epoch 106/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.396
7 - accuracy: 0.8357
Epoch 107/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.396
6 - accuracy: 0.8363
Epoch 108/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.396
6 - accuracy: 0.8352
Epoch 109/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.396
5 - accuracy: 0.8385
Epoch 110/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.396
4 - accuracy: 0.8381
Epoch 111/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.396
6 - accuracy: 0.8342
Epoch 112/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.396
3 - accuracy: 0.8363
Epoch 113/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.395
9 - accuracy: 0.8375
Epoch 114/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.396
4 - accuracy: 0.8373
Epoch 115/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.395
8 - accuracy: 0.8391
Epoch 116/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.396
4 - accuracy: 0.8376
Epoch 117/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.395
7 - accuracy: 0.8357
Epoch 118/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.395
8 - accuracy: 0.8362
```

Epoch 119/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.396  
3 - accuracy: 0.8362  
Epoch 120/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.395  
5 - accuracy: 0.8360  
Epoch 121/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.395  
3 - accuracy: 0.8371  
Epoch 122/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.395  
5 - accuracy: 0.8345  
Epoch 123/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.395  
7 - accuracy: 0.8375  
Epoch 124/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.395  
5 - accuracy: 0.8370  
Epoch 125/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.395  
7 - accuracy: 0.8357  
Epoch 126/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.395  
1 - accuracy: 0.8363  
Epoch 127/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.395  
2 - accuracy: 0.8378  
Epoch 128/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.395  
3 - accuracy: 0.8355  
Epoch 129/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.394  
9 - accuracy: 0.8378  
Epoch 130/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.394  
5 - accuracy: 0.8378  
Epoch 131/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.394  
2 - accuracy: 0.8360  
Epoch 132/500  
6030/6030 [=====] - 1s 215us/sample - loss: 0.394  
1 - accuracy: 0.8352  
Epoch 133/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.394  
0 - accuracy: 0.8362  
Epoch 134/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.393  
2 - accuracy: 0.8345  
Epoch 135/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.392  
7 - accuracy: 0.8357  
Epoch 136/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.392  
5 - accuracy: 0.8362  
Epoch 137/500  
6030/6030 [=====] - 1s 227us/sample - loss: 0.391  
8 - accuracy: 0.8368  
Epoch 138/500  
6030/6030 [=====] - 1s 220us/sample - loss: 0.391  
0 - accuracy: 0.8386  
Epoch 139/500

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6030/6030 [=====] - 1s 207us/sample - loss: 0.391
0 - accuracy: 0.8383
Epoch 140/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.389
2 - accuracy: 0.8401
Epoch 141/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.387
8 - accuracy: 0.8420
Epoch 142/500
6030/6030 [=====] - 2s 307us/sample - loss: 0.386
3 - accuracy: 0.8416
Epoch 143/500
6030/6030 [=====] - 1s 246us/sample - loss: 0.384
6 - accuracy: 0.8410
Epoch 144/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.382
1 - accuracy: 0.8428
Epoch 145/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.378
5 - accuracy: 0.8400
Epoch 146/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.375
2 - accuracy: 0.8438
Epoch 147/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.372
5 - accuracy: 0.8449
Epoch 148/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.368
1 - accuracy: 0.8464
Epoch 149/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.364
0 - accuracy: 0.8486
Epoch 150/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.360
5 - accuracy: 0.8498
Epoch 151/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.358
1 - accuracy: 0.8529
Epoch 152/500
6030/6030 [=====] - 1s 234us/sample - loss: 0.356
2 - accuracy: 0.8539
Epoch 153/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.354
7 - accuracy: 0.8549
Epoch 154/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.353
7 - accuracy: 0.8552
Epoch 155/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.352
4 - accuracy: 0.8561
Epoch 156/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.351
7 - accuracy: 0.8546
Epoch 157/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.350
3 - accuracy: 0.8567
Epoch 158/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.350
1 - accuracy: 0.8569
Epoch 159/500
6030/6030 [=====] - 1s 232us/sample - loss: 0.349
```



```
9 - accuracy: 0.8570
Epoch 160/500
6030/6030 [=====] - 2s 278us/sample - loss: 0.349
3 - accuracy: 0.8562
Epoch 161/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.348
5 - accuracy: 0.8587
Epoch 162/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.348
5 - accuracy: 0.8587
Epoch 163/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.348
2 - accuracy: 0.8575
Epoch 164/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.347
5 - accuracy: 0.8584
Epoch 165/500
6030/6030 [=====] - 1s 244us/sample - loss: 0.348
0 - accuracy: 0.8561
Epoch 166/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.347
4 - accuracy: 0.8572
Epoch 167/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.347
5 - accuracy: 0.8594
Epoch 168/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.346
6 - accuracy: 0.8575
Epoch 169/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.346
4 - accuracy: 0.8585
Epoch 170/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.346
4 - accuracy: 0.8582
Epoch 171/500
6030/6030 [=====] - 2s 275us/sample - loss: 0.345
9 - accuracy: 0.8595 - loss: 0.3449 - accuracy: 0.85
Epoch 172/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.345
8 - accuracy: 0.8559
Epoch 173/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.346
1 - accuracy: 0.8559
Epoch 174/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.345
3 - accuracy: 0.8574
Epoch 175/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.345
5 - accuracy: 0.8570
Epoch 176/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.345
4 - accuracy: 0.8597
Epoch 177/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.345
2 - accuracy: 0.8582
Epoch 178/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.344
9 - accuracy: 0.8575
Epoch 179/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.345
0 - accuracy: 0.8575
```

Epoch 180/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.344  
4 - accuracy: 0.8585  
Epoch 181/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.344  
2 - accuracy: 0.8575  
Epoch 182/500  
6030/6030 [=====] - 1s 232us/sample - loss: 0.344  
5 - accuracy: 0.8579  
Epoch 183/500  
6030/6030 [=====] - 1s 232us/sample - loss: 0.343  
8 - accuracy: 0.8600  
Epoch 184/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.344  
0 - accuracy: 0.8575  
Epoch 185/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.343  
4 - accuracy: 0.8582  
Epoch 186/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.343  
5 - accuracy: 0.8587  
Epoch 187/500  
6030/6030 [=====] - 1s 248us/sample - loss: 0.343  
5 - accuracy: 0.8577  
Epoch 188/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.342  
7 - accuracy: 0.8589  
Epoch 189/500  
6030/6030 [=====] - 1s 225us/sample - loss: 0.343  
5 - accuracy: 0.8587  
Epoch 190/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.343  
9 - accuracy: 0.8587  
Epoch 191/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.343  
3 - accuracy: 0.8580  
Epoch 192/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.342  
2 - accuracy: 0.8594  
Epoch 193/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.342  
8 - accuracy: 0.8580  
Epoch 194/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.342  
4 - accuracy: 0.8612  
Epoch 195/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.343  
0 - accuracy: 0.8597  
Epoch 196/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.342  
1 - accuracy: 0.8599  
Epoch 197/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.342  
1 - accuracy: 0.8580  
Epoch 198/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.342  
0 - accuracy: 0.8590  
Epoch 199/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.341  
9 - accuracy: 0.8607  
Epoch 200/500

```
6030/6030 [=====] - 1s 174us/sample - loss: 0.341
7 - accuracy: 0.8615
Epoch 201/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.341
7 - accuracy: 0.8600
Epoch 202/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.342
3 - accuracy: 0.8566
Epoch 203/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.342
5 - accuracy: 0.8604
Epoch 204/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.341
1 - accuracy: 0.8589
Epoch 205/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.342
0 - accuracy: 0.8585
Epoch 206/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.341
2 - accuracy: 0.8599
Epoch 207/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.341
3 - accuracy: 0.8610
Epoch 208/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.341
3 - accuracy: 0.8607
Epoch 209/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.340
7 - accuracy: 0.8597
Epoch 210/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.341
1 - accuracy: 0.8602
Epoch 211/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.340
8 - accuracy: 0.8590
Epoch 212/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.340
4 - accuracy: 0.8594
Epoch 213/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.341
0 - accuracy: 0.8584
Epoch 214/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.340
3 - accuracy: 0.8602
Epoch 215/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.341
1 - accuracy: 0.8605
Epoch 216/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.340
0 - accuracy: 0.8622
Epoch 217/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.340
7 - accuracy: 0.8590
Epoch 218/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.340
7 - accuracy: 0.8587
Epoch 219/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.340
3 - accuracy: 0.8602
Epoch 220/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.339
```

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9 - accuracy: 0.8589
Epoch 221/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.339
7 - accuracy: 0.8599
Epoch 222/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.339
9 - accuracy: 0.8574
Epoch 223/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.340
5 - accuracy: 0.8582
Epoch 224/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.339
8 - accuracy: 0.8604
Epoch 225/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.340
2 - accuracy: 0.8595
Epoch 226/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.339
5 - accuracy: 0.8590
Epoch 227/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.339
2 - accuracy: 0.8564
Epoch 228/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.338
5 - accuracy: 0.8599
Epoch 229/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.339
1 - accuracy: 0.8624
Epoch 230/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.339
3 - accuracy: 0.8579
Epoch 231/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.338
8 - accuracy: 0.8600
Epoch 232/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.339
1 - accuracy: 0.8582
Epoch 233/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.338
1 - accuracy: 0.8605
Epoch 234/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.338
7 - accuracy: 0.8605
Epoch 235/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.338
0 - accuracy: 0.8592
Epoch 236/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.338
0 - accuracy: 0.8609
Epoch 237/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.338
4 - accuracy: 0.8594
Epoch 238/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.338
1 - accuracy: 0.8589
Epoch 239/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.337
5 - accuracy: 0.8599
Epoch 240/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.337
4 - accuracy: 0.8614
```

Epoch 241/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.338  
1 - accuracy: 0.8594  
Epoch 242/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.337  
9 - accuracy: 0.8620  
Epoch 243/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.337  
3 - accuracy: 0.8609  
Epoch 244/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.337  
8 - accuracy: 0.8592  
Epoch 245/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.337  
0 - accuracy: 0.8612  
Epoch 246/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.336  
8 - accuracy: 0.8597  
Epoch 247/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.337  
3 - accuracy: 0.8632  
Epoch 248/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.336  
9 - accuracy: 0.8609  
Epoch 249/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.336  
4 - accuracy: 0.8633  
Epoch 250/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.335  
9 - accuracy: 0.8599  
Epoch 251/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.336  
9 - accuracy: 0.8577  
Epoch 252/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.336  
5 - accuracy: 0.8624  
Epoch 253/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.336  
7 - accuracy: 0.8599  
Epoch 254/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.336  
9 - accuracy: 0.8600  
Epoch 255/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.336  
3 - accuracy: 0.8617  
Epoch 256/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.336  
2 - accuracy: 0.8605  
Epoch 257/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.336  
3 - accuracy: 0.8617  
Epoch 258/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.336  
7 - accuracy: 0.8605  
Epoch 259/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.336  
1 - accuracy: 0.8609  
Epoch 260/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.336  
0 - accuracy: 0.8620  
Epoch 261/500

```
6030/6030 [=====] - 1s 176us/sample - loss: 0.335
7 - accuracy: 0.8627
Epoch 262/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.337
0 - accuracy: 0.8594
Epoch 263/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.335
6 - accuracy: 0.8605
Epoch 264/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.335
5 - accuracy: 0.8587
Epoch 265/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.335
5 - accuracy: 0.8599
Epoch 266/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.335
7 - accuracy: 0.8599
Epoch 267/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.335
4 - accuracy: 0.8590
Epoch 268/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.334
9 - accuracy: 0.8605
Epoch 269/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.334
7 - accuracy: 0.8605
Epoch 270/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.335
1 - accuracy: 0.8594
Epoch 271/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.335
2 - accuracy: 0.8604
Epoch 272/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.335
7 - accuracy: 0.8584
Epoch 273/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.334
7 - accuracy: 0.8617
Epoch 274/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.335
4 - accuracy: 0.8605
Epoch 275/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.334
9 - accuracy: 0.8602
Epoch 276/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.334
7 - accuracy: 0.8594
Epoch 277/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.334
3 - accuracy: 0.8609
Epoch 278/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.334
4 - accuracy: 0.8600
Epoch 279/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.334
6 - accuracy: 0.8612
Epoch 280/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.334
4 - accuracy: 0.8599
Epoch 281/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.333
```

```
7 - accuracy: 0.8610
Epoch 282/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.334
0 - accuracy: 0.8607
Epoch 283/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.334
1 - accuracy: 0.8595
Epoch 284/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.333
8 - accuracy: 0.8625
Epoch 285/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.334
3 - accuracy: 0.8625
Epoch 286/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.334
5 - accuracy: 0.8607
Epoch 287/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.333
7 - accuracy: 0.8632
Epoch 288/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.334
4 - accuracy: 0.8605
Epoch 289/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.333
9 - accuracy: 0.8614
Epoch 290/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.333
0 - accuracy: 0.8652
Epoch 291/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.333
5 - accuracy: 0.8590
Epoch 292/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.333
6 - accuracy: 0.8629
Epoch 293/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.333
6 - accuracy: 0.8589
Epoch 294/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.334
0 - accuracy: 0.8624
Epoch 295/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.333
1 - accuracy: 0.8604
Epoch 296/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.333
6 - accuracy: 0.8622
Epoch 297/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.333
1 - accuracy: 0.8624
Epoch 298/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.333
4 - accuracy: 0.8622
Epoch 299/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.332
8 - accuracy: 0.8615
Epoch 300/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.332
8 - accuracy: 0.8635
Epoch 301/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.332
9 - accuracy: 0.8612
```

Epoch 302/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.333  
0 - accuracy: 0.8614  
Epoch 303/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.332  
5 - accuracy: 0.8609  
Epoch 304/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.332  
4 - accuracy: 0.8595  
Epoch 305/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.333  
1 - accuracy: 0.8619  
Epoch 306/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.332  
1 - accuracy: 0.8625  
Epoch 307/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.333  
1 - accuracy: 0.8638  
Epoch 308/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.332  
5 - accuracy: 0.8630  
Epoch 309/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.332  
7 - accuracy: 0.8629  
Epoch 310/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.332  
5 - accuracy: 0.8630  
Epoch 311/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.332  
4 - accuracy: 0.8642  
Epoch 312/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.332  
1 - accuracy: 0.8630  
Epoch 313/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.330  
8 - accuracy: 0.8637  
Epoch 314/500  
6030/6030 [=====] - 2s 250us/sample - loss: 0.331  
8 - accuracy: 0.8658  
Epoch 315/500  
6030/6030 [=====] - 1s 235us/sample - loss: 0.331  
6 - accuracy: 0.8629  
Epoch 316/500  
6030/6030 [=====] - 1s 225us/sample - loss: 0.332  
2 - accuracy: 0.8624  
Epoch 317/500  
6030/6030 [=====] - 1s 223us/sample - loss: 0.331  
6 - accuracy: 0.8617  
Epoch 318/500  
6030/6030 [=====] - 2s 258us/sample - loss: 0.332  
0 - accuracy: 0.8600  
Epoch 319/500  
6030/6030 [=====] - 1s 231us/sample - loss: 0.332  
0 - accuracy: 0.8624  
Epoch 320/500  
6030/6030 [=====] - 1s 234us/sample - loss: 0.331  
4 - accuracy: 0.8635  
Epoch 321/500  
6030/6030 [=====] - 1s 247us/sample - loss: 0.331  
7 - accuracy: 0.8622  
Epoch 322/500



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6030/6030 [=====] - 1s 219us/sample - loss: 0.331
4 - accuracy: 0.8615
Epoch 323/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.330
5 - accuracy: 0.8622
Epoch 324/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.330
6 - accuracy: 0.8652
Epoch 325/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.330
6 - accuracy: 0.8638
Epoch 326/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.331
2 - accuracy: 0.8614
Epoch 327/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.331
0 - accuracy: 0.8637
Epoch 328/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.331
6 - accuracy: 0.8614
Epoch 329/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.330
5 - accuracy: 0.8648
Epoch 330/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.330
6 - accuracy: 0.8637
Epoch 331/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.330
2 - accuracy: 0.8640
Epoch 332/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.330
6 - accuracy: 0.8624
Epoch 333/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.330
1 - accuracy: 0.8629
Epoch 334/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.330
5 - accuracy: 0.8619
Epoch 335/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.330
0 - accuracy: 0.8630
Epoch 336/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.330
2 - accuracy: 0.8652
Epoch 337/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.330
2 - accuracy: 0.8652
Epoch 338/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.330
0 - accuracy: 0.8660
Epoch 339/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.330
1 - accuracy: 0.8642
Epoch 340/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.329
7 - accuracy: 0.8650
Epoch 341/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.330
5 - accuracy: 0.8633
Epoch 342/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.330
```

```
4 - accuracy: 0.8637
Epoch 343/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.330
3 - accuracy: 0.8658
Epoch 344/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.329
9 - accuracy: 0.8627
Epoch 345/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.329
9 - accuracy: 0.8648
Epoch 346/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.329
8 - accuracy: 0.8650
Epoch 347/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.330
7 - accuracy: 0.8657
Epoch 348/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.329
8 - accuracy: 0.8658
Epoch 349/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.329
8 - accuracy: 0.8658
Epoch 350/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.329
6 - accuracy: 0.8648
Epoch 351/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.329
9 - accuracy: 0.8645
Epoch 352/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.330
1 - accuracy: 0.8642
Epoch 353/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.328
7 - accuracy: 0.8650
Epoch 354/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.329
8 - accuracy: 0.8609
Epoch 355/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.329
6 - accuracy: 0.8665
Epoch 356/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.329
6 - accuracy: 0.8648
Epoch 357/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.329
6 - accuracy: 0.8660
Epoch 358/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.329
3 - accuracy: 0.8655
Epoch 359/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.329
0 - accuracy: 0.8653
Epoch 360/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.329
2 - accuracy: 0.8629
Epoch 361/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.328
5 - accuracy: 0.8643
Epoch 362/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.329
2 - accuracy: 0.8638
```

Epoch 363/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.328  
5 - accuracy: 0.8655  
Epoch 364/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.329  
9 - accuracy: 0.8632  
Epoch 365/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.328  
5 - accuracy: 0.8660  
Epoch 366/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.328  
8 - accuracy: 0.8624  
Epoch 367/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.328  
5 - accuracy: 0.8648  
Epoch 368/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.329  
3 - accuracy: 0.8660  
Epoch 369/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.328  
8 - accuracy: 0.8650  
Epoch 370/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.328  
7 - accuracy: 0.8650  
Epoch 371/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.328  
6 - accuracy: 0.8653  
Epoch 372/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.329  
9 - accuracy: 0.8645  
Epoch 373/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.329  
1 - accuracy: 0.8662  
Epoch 374/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.328  
3 - accuracy: 0.8657  
Epoch 375/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.328  
7 - accuracy: 0.8657  
Epoch 376/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.328  
9 - accuracy: 0.8638  
Epoch 377/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.329  
1 - accuracy: 0.8635 - loss: 0.318 - ETA: 0s - loss: 0.3292 - accuracy: 0.  
86  
Epoch 378/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.328  
6 - accuracy: 0.8658  
Epoch 379/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.328  
8 - accuracy: 0.8647  
Epoch 380/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.327  
8 - accuracy: 0.8668  
Epoch 381/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.328  
7 - accuracy: 0.8643  
Epoch 382/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.328  
1 - accuracy: 0.8653

Epoch 383/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.328  
4 - accuracy: 0.8657  
Epoch 384/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.328  
4 - accuracy: 0.8658  
Epoch 385/500  
6030/6030 [=====] - 1s 167us/sample - loss: 0.328  
9 - accuracy: 0.8647  
Epoch 386/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.328  
2 - accuracy: 0.8650  
Epoch 387/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.329  
4 - accuracy: 0.8620  
Epoch 388/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.328  
2 - accuracy: 0.8648  
Epoch 389/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.327  
7 - accuracy: 0.8655  
Epoch 390/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.328  
3 - accuracy: 0.8667  
Epoch 391/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.328  
7 - accuracy: 0.8658  
Epoch 392/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.329  
0 - accuracy: 0.8643  
Epoch 393/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.328  
7 - accuracy: 0.8653  
Epoch 394/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.327  
9 - accuracy: 0.8658  
Epoch 395/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.328  
5 - accuracy: 0.8648  
Epoch 396/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.328  
1 - accuracy: 0.8640  
Epoch 397/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.328  
6 - accuracy: 0.8633  
Epoch 398/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.328  
3 - accuracy: 0.8652  
Epoch 399/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.327  
5 - accuracy: 0.8657  
Epoch 400/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.328  
2 - accuracy: 0.8652  
Epoch 401/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.328  
6 - accuracy: 0.8673  
Epoch 402/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.327  
9 - accuracy: 0.8652  
Epoch 403/500

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6030/6030 [=====] - 1s 177us/sample - loss: 0.328
5 - accuracy: 0.8655
Epoch 404/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.328
5 - accuracy: 0.8647
Epoch 405/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.328
4 - accuracy: 0.8678
Epoch 406/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.329
0 - accuracy: 0.8615
Epoch 407/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.329
6 - accuracy: 0.8635
Epoch 408/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.327
7 - accuracy: 0.8645
Epoch 409/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.328
7 - accuracy: 0.8650
Epoch 410/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.327
5 - accuracy: 0.8668
Epoch 411/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.328
7 - accuracy: 0.8637
Epoch 412/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.327
7 - accuracy: 0.8650
Epoch 413/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.328
1 - accuracy: 0.8645
Epoch 414/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.327
8 - accuracy: 0.8645
Epoch 415/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.328
1 - accuracy: 0.8657
Epoch 416/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.328
2 - accuracy: 0.8658
Epoch 417/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.328
1 - accuracy: 0.8657
Epoch 418/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.328
0 - accuracy: 0.8655
Epoch 419/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.327
4 - accuracy: 0.8643
Epoch 420/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.328
2 - accuracy: 0.8683
Epoch 421/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.327
5 - accuracy: 0.8663
Epoch 422/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.327
1 - accuracy: 0.8638
Epoch 423/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.327
```

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5 - accuracy: 0.8660
Epoch 424/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.327
7 - accuracy: 0.8667
Epoch 425/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.328
2 - accuracy: 0.8653
Epoch 426/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.327
8 - accuracy: 0.8657
Epoch 427/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.327
4 - accuracy: 0.8647
Epoch 428/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.327
4 - accuracy: 0.8657
Epoch 429/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.327
6 - accuracy: 0.8670
Epoch 430/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.327
1 - accuracy: 0.8657
Epoch 431/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.327
7 - accuracy: 0.8658
Epoch 432/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.327
6 - accuracy: 0.8650
Epoch 433/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.327
6 - accuracy: 0.8652
Epoch 434/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.327
3 - accuracy: 0.8627
Epoch 435/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.328
3 - accuracy: 0.8662
Epoch 436/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.327
3 - accuracy: 0.8662
Epoch 437/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.326
8 - accuracy: 0.8668
Epoch 438/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.327
4 - accuracy: 0.8657
Epoch 439/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.327
8 - accuracy: 0.8652
Epoch 440/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.327
8 - accuracy: 0.8655
Epoch 441/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.327
5 - accuracy: 0.8653
Epoch 442/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.326
9 - accuracy: 0.8658
Epoch 443/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.326
8 - accuracy: 0.8665
```

Epoch 444/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.327  
7 - accuracy: 0.8638  
Epoch 445/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.327  
3 - accuracy: 0.8662  
Epoch 446/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.327  
7 - accuracy: 0.8642  
Epoch 447/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.328  
1 - accuracy: 0.8630  
Epoch 448/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.326  
9 - accuracy: 0.8658  
Epoch 449/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.327  
6 - accuracy: 0.8630  
Epoch 450/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.327  
0 - accuracy: 0.8643  
Epoch 451/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.327  
2 - accuracy: 0.8663  
Epoch 452/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.327  
5 - accuracy: 0.8647  
Epoch 453/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.327  
4 - accuracy: 0.8650  
Epoch 454/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.327  
5 - accuracy: 0.8670  
Epoch 455/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.327  
2 - accuracy: 0.8663  
Epoch 456/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.327  
9 - accuracy: 0.8652  
Epoch 457/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.328  
2 - accuracy: 0.8645  
Epoch 458/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.326  
9 - accuracy: 0.8667  
Epoch 459/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.327  
3 - accuracy: 0.8668  
Epoch 460/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.328  
2 - accuracy: 0.8660  
Epoch 461/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.327  
4 - accuracy: 0.8667  
Epoch 462/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.327  
0 - accuracy: 0.8652  
Epoch 463/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.327  
3 - accuracy: 0.8660  
Epoch 464/500

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6030/6030 [=====] - 1s 171us/sample - loss: 0.327
1 - accuracy: 0.8652
Epoch 465/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.328
2 - accuracy: 0.8648
Epoch 466/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.327
0 - accuracy: 0.8647
Epoch 467/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.327
7 - accuracy: 0.8678
Epoch 468/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.326
9 - accuracy: 0.8672
Epoch 469/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.328
4 - accuracy: 0.8647
Epoch 470/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.327
4 - accuracy: 0.8660
Epoch 471/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.326
7 - accuracy: 0.8677
Epoch 472/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.327
5 - accuracy: 0.8655
Epoch 473/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.327
1 - accuracy: 0.8619
Epoch 474/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.326
8 - accuracy: 0.8645
Epoch 475/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.327
1 - accuracy: 0.8642
Epoch 476/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.327
2 - accuracy: 0.8648
Epoch 477/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.327
3 - accuracy: 0.8643
Epoch 478/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.327
0 - accuracy: 0.8655
Epoch 479/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.326
8 - accuracy: 0.8673
Epoch 480/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.327
4 - accuracy: 0.8668
Epoch 481/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.327
0 - accuracy: 0.8667
Epoch 482/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.327
4 - accuracy: 0.8635
Epoch 483/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.326
9 - accuracy: 0.8647
Epoch 484/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.327
```



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2 - accuracy: 0.8633
Epoch 485/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.326
9 - accuracy: 0.8655
Epoch 486/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.327
8 - accuracy: 0.8675
Epoch 487/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.327
2 - accuracy: 0.8657
Epoch 488/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.326
9 - accuracy: 0.8672
Epoch 489/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.327
4 - accuracy: 0.8647
Epoch 490/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.326
9 - accuracy: 0.8650
Epoch 491/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.327
7 - accuracy: 0.8658
Epoch 492/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.327
2 - accuracy: 0.8653
Epoch 493/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.327
3 - accuracy: 0.8667
Epoch 494/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.327
3 - accuracy: 0.8637
Epoch 495/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.326
9 - accuracy: 0.8647
Epoch 496/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.326
6 - accuracy: 0.8652
Epoch 497/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.327
9 - accuracy: 0.8643
Epoch 498/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.327
3 - accuracy: 0.8609
Epoch 499/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.326
9 - accuracy: 0.8667
Epoch 500/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.326
7 - accuracy: 0.8663
Train on 6030 samples
Epoch 1/500
6030/6030 [=====] - 2s 289us/sample - loss: 0.606
9 - accuracy: 0.7942
Epoch 2/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.455
3 - accuracy: 0.7954
Epoch 3/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.438
0 - accuracy: 0.7954
Epoch 4/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.433
```

```
2 - accuracy: 0.7954
Epoch 5/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.430
7 - accuracy: 0.7954
Epoch 6/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.428
4 - accuracy: 0.7954
Epoch 7/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.425
9 - accuracy: 0.7954
Epoch 8/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.423
2 - accuracy: 0.7954
Epoch 9/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.421
0 - accuracy: 0.8068
Epoch 10/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.419
0 - accuracy: 0.8211
Epoch 11/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.417
5 - accuracy: 0.8254
Epoch 12/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.416
0 - accuracy: 0.8279
Epoch 13/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.415
1 - accuracy: 0.8272
Epoch 14/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.413
7 - accuracy: 0.8289
Epoch 15/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.412
9 - accuracy: 0.8308
Epoch 16/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.411
9 - accuracy: 0.8315
Epoch 17/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.411
1 - accuracy: 0.8315
Epoch 18/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.410
6 - accuracy: 0.8325
Epoch 19/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.409
8 - accuracy: 0.8320
Epoch 20/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.409
3 - accuracy: 0.8325
Epoch 21/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.408
7 - accuracy: 0.8330
Epoch 22/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.408
3 - accuracy: 0.8332
Epoch 23/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.407
7 - accuracy: 0.8333
Epoch 24/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.407
1 - accuracy: 0.8338
```

Epoch 25/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.406  
6 - accuracy: 0.8340

Epoch 26/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.406  
3 - accuracy: 0.8323

Epoch 27/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.405  
8 - accuracy: 0.8335

Epoch 28/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.405  
1 - accuracy: 0.8330

Epoch 29/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.404  
5 - accuracy: 0.8337

Epoch 30/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.404  
1 - accuracy: 0.8338

Epoch 31/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.403  
6 - accuracy: 0.8332

Epoch 32/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.402  
8 - accuracy: 0.8320

Epoch 33/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.402  
2 - accuracy: 0.8342

Epoch 34/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.402  
0 - accuracy: 0.8335

Epoch 35/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.401  
4 - accuracy: 0.8328

Epoch 36/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.401  
1 - accuracy: 0.8338

Epoch 37/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.400  
5 - accuracy: 0.8345

Epoch 38/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.400  
3 - accuracy: 0.8332

Epoch 39/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.400  
0 - accuracy: 0.8335

Epoch 40/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.399  
4 - accuracy: 0.8337

Epoch 41/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.399  
2 - accuracy: 0.8338

Epoch 42/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.398  
5 - accuracy: 0.8343

Epoch 43/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.398  
6 - accuracy: 0.8332

Epoch 44/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.398  
0 - accuracy: 0.8342

Epoch 45/500

```
6030/6030 [=====] - 1s 193us/sample - loss: 0.398
1 - accuracy: 0.8335 - 1
Epoch 46/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.397
6 - accuracy: 0.8357
Epoch 47/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.397
4 - accuracy: 0.8357
Epoch 48/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.397
4 - accuracy: 0.8347
Epoch 49/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.397
0 - accuracy: 0.8347
Epoch 50/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.396
5 - accuracy: 0.8353
Epoch 51/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.396
7 - accuracy: 0.8338
Epoch 52/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.396
3 - accuracy: 0.8343
Epoch 53/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.396
7 - accuracy: 0.8333
Epoch 54/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.396
0 - accuracy: 0.8338
Epoch 55/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.396
0 - accuracy: 0.8347
Epoch 56/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.395
9 - accuracy: 0.8358
Epoch 57/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.395
5 - accuracy: 0.8333
Epoch 58/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.395
3 - accuracy: 0.8367
Epoch 59/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.395
7 - accuracy: 0.8360
Epoch 60/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.395
6 - accuracy: 0.8353
Epoch 61/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.395
3 - accuracy: 0.8355 - loss: 0.3957 - accuracy: 0.83
Epoch 62/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.394
9 - accuracy: 0.8345
Epoch 63/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.395
2 - accuracy: 0.8371
Epoch 64/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.395
0 - accuracy: 0.8367
Epoch 65/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
```

```
9 - accuracy: 0.8352
Epoch 66/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
8 - accuracy: 0.8355
Epoch 67/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.394
6 - accuracy: 0.8383
Epoch 68/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.394
5 - accuracy: 0.8343
Epoch 69/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.394
3 - accuracy: 0.8365
Epoch 70/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.394
2 - accuracy: 0.8375
Epoch 71/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.394
4 - accuracy: 0.8363
Epoch 72/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
1 - accuracy: 0.8348
Epoch 73/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.393
7 - accuracy: 0.8355
Epoch 74/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.394
2 - accuracy: 0.8367
Epoch 75/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.393
9 - accuracy: 0.8357
Epoch 76/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.394
0 - accuracy: 0.8350
Epoch 77/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.394
1 - accuracy: 0.8343
Epoch 78/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.393
6 - accuracy: 0.8365
Epoch 79/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.393
8 - accuracy: 0.8357
Epoch 80/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.393
5 - accuracy: 0.8371
Epoch 81/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.393
9 - accuracy: 0.8355
Epoch 82/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.393
6 - accuracy: 0.8376
Epoch 83/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.393
7 - accuracy: 0.8357
Epoch 84/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.393
6 - accuracy: 0.8371
Epoch 85/500
6030/6030 [=====] - 2s 258us/sample - loss: 0.393
7 - accuracy: 0.8343
```

Epoch 86/500  
6030/6030 [=====] - 1s 222us/sample - loss: 0.393  
1 - accuracy: 0.8362

Epoch 87/500  
6030/6030 [=====] - 2s 266us/sample - loss: 0.393  
2 - accuracy: 0.8381

Epoch 88/500  
6030/6030 [=====] - 1s 237us/sample - loss: 0.393  
2 - accuracy: 0.8367

Epoch 89/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.392  
9 - accuracy: 0.8371

Epoch 90/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.393  
4 - accuracy: 0.8370

Epoch 91/500  
6030/6030 [=====] - 1s 240us/sample - loss: 0.393  
4 - accuracy: 0.8353 - loss: 0.400

Epoch 92/500  
6030/6030 [=====] - 1s 240us/sample - loss: 0.393  
0 - accuracy: 0.8355

Epoch 93/500  
6030/6030 [=====] - 1s 246us/sample - loss: 0.393  
4 - accuracy: 0.8347

Epoch 94/500  
6030/6030 [=====] - 1s 241us/sample - loss: 0.392  
9 - accuracy: 0.8368

Epoch 95/500  
6030/6030 [=====] - 1s 245us/sample - loss: 0.393  
0 - accuracy: 0.8368

Epoch 96/500  
6030/6030 [=====] - 1s 244us/sample - loss: 0.392  
7 - accuracy: 0.8370

Epoch 97/500  
6030/6030 [=====] - 1s 244us/sample - loss: 0.393  
1 - accuracy: 0.8367

Epoch 98/500  
6030/6030 [=====] - 1s 238us/sample - loss: 0.392  
7 - accuracy: 0.8367

Epoch 99/500  
6030/6030 [=====] - 1s 232us/sample - loss: 0.392  
5 - accuracy: 0.8368

Epoch 100/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.392  
6 - accuracy: 0.8385

Epoch 101/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.392  
5 - accuracy: 0.8378

Epoch 102/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.392  
6 - accuracy: 0.8363

Epoch 103/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.392  
4 - accuracy: 0.8358

Epoch 104/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.392  
3 - accuracy: 0.8371

Epoch 105/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.392  
3 - accuracy: 0.8355

Epoch 106/500

```
6030/6030 [=====] - 1s 185us/sample - loss: 0.392
1 - accuracy: 0.8363
Epoch 107/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.392
4 - accuracy: 0.8373
Epoch 108/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.391
9 - accuracy: 0.8363
Epoch 109/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.392
2 - accuracy: 0.8380
Epoch 110/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.392
3 - accuracy: 0.8383
Epoch 111/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.392
2 - accuracy: 0.8367
Epoch 112/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.391
9 - accuracy: 0.8373
Epoch 113/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.392
1 - accuracy: 0.8378
Epoch 114/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.391
8 - accuracy: 0.8368
Epoch 115/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.391
5 - accuracy: 0.8371
Epoch 116/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.391
9 - accuracy: 0.8365
Epoch 117/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.391
6 - accuracy: 0.8385
Epoch 118/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.391
6 - accuracy: 0.8381
Epoch 119/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.391
6 - accuracy: 0.8368
Epoch 120/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.390
8 - accuracy: 0.8381
Epoch 121/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.391
5 - accuracy: 0.8373
Epoch 122/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.391
8 - accuracy: 0.8378
Epoch 123/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.391
3 - accuracy: 0.8375
Epoch 124/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.391
4 - accuracy: 0.8360
Epoch 125/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.390
9 - accuracy: 0.8368
Epoch 126/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.391
```

```
4 - accuracy: 0.8388
Epoch 127/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.391
4 - accuracy: 0.8368
Epoch 128/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.391
2 - accuracy: 0.8371
Epoch 129/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.391
2 - accuracy: 0.8370
Epoch 130/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.390
4 - accuracy: 0.8381
Epoch 131/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.391
2 - accuracy: 0.8380
Epoch 132/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.391
0 - accuracy: 0.8391
Epoch 133/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.390
8 - accuracy: 0.8363
Epoch 134/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.390
8 - accuracy: 0.8378
Epoch 135/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.391
0 - accuracy: 0.8376
Epoch 136/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.391
1 - accuracy: 0.8373
Epoch 137/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.390
8 - accuracy: 0.8378
Epoch 138/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.390
6 - accuracy: 0.8396
Epoch 139/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.391
1 - accuracy: 0.8360
Epoch 140/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.390
8 - accuracy: 0.8368
Epoch 141/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.390
8 - accuracy: 0.8373
Epoch 142/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.390
8 - accuracy: 0.8383
Epoch 143/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.390
4 - accuracy: 0.8390
Epoch 144/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.390
7 - accuracy: 0.8367
Epoch 145/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.391
1 - accuracy: 0.8380
Epoch 146/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.390
2 - accuracy: 0.8385
```



Epoch 147/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.390  
8 - accuracy: 0.8386  
Epoch 148/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.390  
7 - accuracy: 0.8371  
Epoch 149/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.390  
6 - accuracy: 0.8385  
Epoch 150/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.390  
7 - accuracy: 0.8383  
Epoch 151/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.390  
6 - accuracy: 0.8375  
Epoch 152/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.390  
7 - accuracy: 0.8373  
Epoch 153/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.390  
8 - accuracy: 0.8388  
Epoch 154/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.390  
5 - accuracy: 0.8401  
Epoch 155/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.390  
2 - accuracy: 0.8380  
Epoch 156/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.390  
0 - accuracy: 0.8403  
Epoch 157/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.390  
5 - accuracy: 0.8376  
Epoch 158/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.390  
5 - accuracy: 0.8380  
Epoch 159/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.390  
7 - accuracy: 0.8381  
Epoch 160/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.390  
0 - accuracy: 0.8385  
Epoch 161/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.390  
4 - accuracy: 0.8378  
Epoch 162/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.390  
5 - accuracy: 0.8401  
Epoch 163/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.390  
2 - accuracy: 0.8408  
Epoch 164/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.390  
1 - accuracy: 0.8358  
Epoch 165/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.390  
2 - accuracy: 0.8385  
Epoch 166/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.390  
0 - accuracy: 0.8385  
Epoch 167/500

```
6030/6030 [=====] - 1s 186us/sample - loss: 0.390
2 - accuracy: 0.8376
Epoch 168/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.390
5 - accuracy: 0.8385
Epoch 169/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.390
2 - accuracy: 0.8385
Epoch 170/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.390
4 - accuracy: 0.8383
Epoch 171/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.389
8 - accuracy: 0.8396
Epoch 172/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.390
6 - accuracy: 0.8385
Epoch 173/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.389
7 - accuracy: 0.8393
Epoch 174/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.390
2 - accuracy: 0.8403
Epoch 175/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.390
0 - accuracy: 0.8390
Epoch 176/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.390
3 - accuracy: 0.8396
Epoch 177/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.389
9 - accuracy: 0.8380
Epoch 178/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.390
0 - accuracy: 0.8390
Epoch 179/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.389
9 - accuracy: 0.8385
Epoch 180/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.389
7 - accuracy: 0.8386
Epoch 181/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.390
3 - accuracy: 0.8405
Epoch 182/500
6030/6030 [=====] - 1s 236us/sample - loss: 0.390
1 - accuracy: 0.8375
Epoch 183/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.390
3 - accuracy: 0.8381
Epoch 184/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.390
0 - accuracy: 0.8395
Epoch 185/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.389
8 - accuracy: 0.8406
Epoch 186/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.390
0 - accuracy: 0.8381
Epoch 187/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.389
```

```
6 - accuracy: 0.8373
Epoch 188/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.390
3 - accuracy: 0.8393
Epoch 189/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.389
9 - accuracy: 0.8385
Epoch 190/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.389
5 - accuracy: 0.8388
Epoch 191/500
6030/6030 [=====] - 2s 267us/sample - loss: 0.390
0 - accuracy: 0.8395
Epoch 192/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.389
5 - accuracy: 0.8390
Epoch 193/500
6030/6030 [=====] - 2s 251us/sample - loss: 0.389
9 - accuracy: 0.8373
Epoch 194/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.390
2 - accuracy: 0.8388
Epoch 195/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.390
1 - accuracy: 0.8401
Epoch 196/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.389
6 - accuracy: 0.8385
Epoch 197/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.389
5 - accuracy: 0.8403
Epoch 198/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.389
8 - accuracy: 0.8398
Epoch 199/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.390
1 - accuracy: 0.8386
Epoch 200/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.390
1 - accuracy: 0.8393
Epoch 201/500
6030/6030 [=====] - 1s 231us/sample - loss: 0.389
6 - accuracy: 0.8385
Epoch 202/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.389
8 - accuracy: 0.8388
Epoch 203/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.389
9 - accuracy: 0.8371
Epoch 204/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.389
7 - accuracy: 0.8390
Epoch 205/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.389
8 - accuracy: 0.8378
Epoch 206/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.389
4 - accuracy: 0.8398
Epoch 207/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.389
5 - accuracy: 0.8380
```

Epoch 208/500  
6030/6030 [=====] - 1s 226us/sample - loss: 0.389  
8 - accuracy: 0.8388  
Epoch 209/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.390  
1 - accuracy: 0.8386  
Epoch 210/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.389  
5 - accuracy: 0.8395  
Epoch 211/500  
6030/6030 [=====] - 1s 223us/sample - loss: 0.390  
0 - accuracy: 0.8393  
Epoch 212/500  
6030/6030 [=====] - 1s 229us/sample - loss: 0.389  
3 - accuracy: 0.8393  
Epoch 213/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.389  
5 - accuracy: 0.8381  
Epoch 214/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.389  
2 - accuracy: 0.8393  
Epoch 215/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.389  
7 - accuracy: 0.8380  
Epoch 216/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.389  
4 - accuracy: 0.8401  
Epoch 217/500  
6030/6030 [=====] - 1s 207us/sample - loss: 0.389  
5 - accuracy: 0.8388  
Epoch 218/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.389  
3 - accuracy: 0.8386  
Epoch 219/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.389  
5 - accuracy: 0.8388  
Epoch 220/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.389  
8 - accuracy: 0.8410  
Epoch 221/500  
6030/6030 [=====] - 1s 223us/sample - loss: 0.389  
6 - accuracy: 0.8380  
Epoch 222/500  
6030/6030 [=====] - 2s 260us/sample - loss: 0.389  
2 - accuracy: 0.8385  
Epoch 223/500  
6030/6030 [=====] - 2s 258us/sample - loss: 0.389  
2 - accuracy: 0.8391  
Epoch 224/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.389  
2 - accuracy: 0.8381  
Epoch 225/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.389  
6 - accuracy: 0.8380  
Epoch 226/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.389  
6 - accuracy: 0.8403  
Epoch 227/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.389  
2 - accuracy: 0.8405  
Epoch 228/500

```
6030/6030 [=====] - 1s 192us/sample - loss: 0.389
2 - accuracy: 0.8380
Epoch 229/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.389
1 - accuracy: 0.8383
Epoch 230/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.389
6 - accuracy: 0.8385
Epoch 231/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.389
4 - accuracy: 0.8401
Epoch 232/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.389
5 - accuracy: 0.8393
Epoch 233/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.389
2 - accuracy: 0.8388
Epoch 234/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.389
1 - accuracy: 0.8398
Epoch 235/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.389
5 - accuracy: 0.8378
Epoch 236/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.389
0 - accuracy: 0.8370
Epoch 237/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.389
2 - accuracy: 0.8376
Epoch 238/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.389
1 - accuracy: 0.8381
Epoch 239/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.389
1 - accuracy: 0.8381
Epoch 240/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.389
5 - accuracy: 0.8391
Epoch 241/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.389
1 - accuracy: 0.8393
Epoch 242/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.388
9 - accuracy: 0.8391
Epoch 243/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.388
9 - accuracy: 0.8375
Epoch 244/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.389
0 - accuracy: 0.8395
Epoch 245/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.388
8 - accuracy: 0.8390
Epoch 246/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.389
6 - accuracy: 0.8385
Epoch 247/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.389
2 - accuracy: 0.8386
Epoch 248/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.389
```

```
6 - accuracy: 0.8380
Epoch 249/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.389
0 - accuracy: 0.8383
Epoch 250/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.389
4 - accuracy: 0.8376
Epoch 251/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.389
1 - accuracy: 0.8391
Epoch 252/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.389
1 - accuracy: 0.8375
Epoch 253/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.388
9 - accuracy: 0.8370
Epoch 254/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.389
0 - accuracy: 0.8398
Epoch 255/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.388
8 - accuracy: 0.8385
Epoch 256/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.389
2 - accuracy: 0.8388
Epoch 257/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.388
9 - accuracy: 0.8383
Epoch 258/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.389
0 - accuracy: 0.8373
Epoch 259/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.389
0 - accuracy: 0.8370
Epoch 260/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.388
5 - accuracy: 0.8380
Epoch 261/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.388
9 - accuracy: 0.8386
Epoch 262/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.388
5 - accuracy: 0.8378
Epoch 263/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.388
7 - accuracy: 0.8373
Epoch 264/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.388
2 - accuracy: 0.8371
Epoch 265/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.388
3 - accuracy: 0.8391
Epoch 266/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.388
4 - accuracy: 0.8378
Epoch 267/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.388
1 - accuracy: 0.8375
Epoch 268/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.387
9 - accuracy: 0.8386
```

Epoch 269/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.387  
3 - accuracy: 0.8405  
Epoch 270/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.387  
5 - accuracy: 0.8380  
Epoch 271/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.387  
3 - accuracy: 0.8380  
Epoch 272/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.386  
6 - accuracy: 0.8401  
Epoch 273/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.386  
5 - accuracy: 0.8400  
Epoch 274/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.386  
3 - accuracy: 0.8393  
Epoch 275/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.386  
5 - accuracy: 0.8391  
Epoch 276/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.386  
1 - accuracy: 0.8391  
Epoch 277/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.385  
7 - accuracy: 0.8386  
Epoch 278/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.385  
8 - accuracy: 0.8393  
Epoch 279/500  
6030/6030 [=====] - 1s 231us/sample - loss: 0.385  
1 - accuracy: 0.8398  
Epoch 280/500  
6030/6030 [=====] - 1s 218us/sample - loss: 0.384  
6 - accuracy: 0.8401  
Epoch 281/500  
6030/6030 [=====] - 1s 234us/sample - loss: 0.384  
0 - accuracy: 0.8398  
Epoch 282/500  
6030/6030 [=====] - 1s 240us/sample - loss: 0.383  
0 - accuracy: 0.8421  
Epoch 283/500  
6030/6030 [=====] - 2s 270us/sample - loss: 0.381  
9 - accuracy: 0.8438  
Epoch 284/500  
6030/6030 [=====] - 1s 237us/sample - loss: 0.380  
5 - accuracy: 0.8438  
Epoch 285/500  
6030/6030 [=====] - 2s 255us/sample - loss: 0.378  
4 - accuracy: 0.8451  
Epoch 286/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.376  
0 - accuracy: 0.8464  
Epoch 287/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.374  
6 - accuracy: 0.8479  
Epoch 288/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.372  
9 - accuracy: 0.8469  
Epoch 289/500

```
6030/6030 [=====] - 1s 183us/sample - loss: 0.371
6 - accuracy: 0.8506
Epoch 290/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.369
5 - accuracy: 0.8496
Epoch 291/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.367
9 - accuracy: 0.8521
Epoch 292/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.365
6 - accuracy: 0.8519
Epoch 293/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.363
0 - accuracy: 0.8511
Epoch 294/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.360
8 - accuracy: 0.8531
Epoch 295/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.357
5 - accuracy: 0.8539
Epoch 296/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.355
5 - accuracy: 0.8546
Epoch 297/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.353
2 - accuracy: 0.8562
Epoch 298/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.351
4 - accuracy: 0.8575
Epoch 299/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.350
0 - accuracy: 0.8585
Epoch 300/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.348
9 - accuracy: 0.8584
Epoch 301/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.347
9 - accuracy: 0.8604
Epoch 302/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.346
8 - accuracy: 0.8594
Epoch 303/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.346
3 - accuracy: 0.8570
Epoch 304/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.345
2 - accuracy: 0.8605
Epoch 305/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.345
2 - accuracy: 0.8602
Epoch 306/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.344
1 - accuracy: 0.8610
Epoch 307/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.344
2 - accuracy: 0.8624
Epoch 308/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.343
6 - accuracy: 0.8602
Epoch 309/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.343
```



```
1 - accuracy: 0.8612
Epoch 310/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.343
1 - accuracy: 0.8637
Epoch 311/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.342
6 - accuracy: 0.8600
Epoch 312/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.342
1 - accuracy: 0.8605
Epoch 313/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.340
6 - accuracy: 0.8637
Epoch 314/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.340
5 - accuracy: 0.8630
Epoch 315/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.340
5 - accuracy: 0.8625
Epoch 316/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.340
1 - accuracy: 0.8624
Epoch 317/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.339
5 - accuracy: 0.8595
Epoch 318/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.338
7 - accuracy: 0.8652
Epoch 319/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.338
5 - accuracy: 0.8637
Epoch 320/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.337
8 - accuracy: 0.8625
Epoch 321/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.337
8 - accuracy: 0.8660
Epoch 322/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.337
8 - accuracy: 0.8645
Epoch 323/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.337
2 - accuracy: 0.8647
Epoch 324/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.337
4 - accuracy: 0.8652
Epoch 325/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.336
9 - accuracy: 0.8660
Epoch 326/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.336
3 - accuracy: 0.8645
Epoch 327/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.335
8 - accuracy: 0.8650
Epoch 328/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.336
0 - accuracy: 0.8687
Epoch 329/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.335
7 - accuracy: 0.8672
```

Epoch 330/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.335  
7 - accuracy: 0.8653  
Epoch 331/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.335  
5 - accuracy: 0.8658  
Epoch 332/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.334  
9 - accuracy: 0.8668  
Epoch 333/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.335  
0 - accuracy: 0.8668  
Epoch 334/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.334  
8 - accuracy: 0.8660  
Epoch 335/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.334  
8 - accuracy: 0.8677  
Epoch 336/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.334  
8 - accuracy: 0.8672  
Epoch 337/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.334  
2 - accuracy: 0.8655  
Epoch 338/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.334  
4 - accuracy: 0.8663  
Epoch 339/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.334  
7 - accuracy: 0.8672  
Epoch 340/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.333  
6 - accuracy: 0.8638  
Epoch 341/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.333  
5 - accuracy: 0.8680  
Epoch 342/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.333  
2 - accuracy: 0.8637  
Epoch 343/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.333  
7 - accuracy: 0.8680  
Epoch 344/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.333  
2 - accuracy: 0.8672  
Epoch 345/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.333  
6 - accuracy: 0.8682  
Epoch 346/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.333  
1 - accuracy: 0.8657  
Epoch 347/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.333  
1 - accuracy: 0.8652  
Epoch 348/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.333  
2 - accuracy: 0.8660  
Epoch 349/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.332  
8 - accuracy: 0.8673 - loss: 0.3340 - accuracy  
Epoch 350/500

```
6030/6030 [=====] - 1s 187us/sample - loss: 0.331
5 - accuracy: 0.8667
Epoch 351/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.332
6 - accuracy: 0.8667
Epoch 352/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.332
6 - accuracy: 0.8657
Epoch 353/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.331
7 - accuracy: 0.8650
Epoch 354/500
6030/6030 [=====] - 2s 252us/sample - loss: 0.332
0 - accuracy: 0.8672
Epoch 355/500
6030/6030 [=====] - 2s 251us/sample - loss: 0.331
9 - accuracy: 0.8663
Epoch 356/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.331
9 - accuracy: 0.8667 - 1
Epoch 357/500
6030/6030 [=====] - 1s 234us/sample - loss: 0.331
2 - accuracy: 0.8688
Epoch 358/500
6030/6030 [=====] - 1s 247us/sample - loss: 0.331
8 - accuracy: 0.8673
Epoch 359/500
6030/6030 [=====] - 2s 250us/sample - loss: 0.331
7 - accuracy: 0.8663
Epoch 360/500
6030/6030 [=====] - 1s 247us/sample - loss: 0.331
1 - accuracy: 0.8662
Epoch 361/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.331
4 - accuracy: 0.8670
Epoch 362/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.331
2 - accuracy: 0.8668
Epoch 363/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.330
9 - accuracy: 0.8698
Epoch 364/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.330
6 - accuracy: 0.8672
Epoch 365/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.331
1 - accuracy: 0.8698
Epoch 366/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.330
7 - accuracy: 0.8660
Epoch 367/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.330
5 - accuracy: 0.8673
Epoch 368/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.330
3 - accuracy: 0.8685 - 1os
Epoch 369/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.330
7 - accuracy: 0.8660
Epoch 370/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.329
```

```
9 - accuracy: 0.8670
Epoch 371/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.330
5 - accuracy: 0.8668
Epoch 372/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.329
8 - accuracy: 0.8650
Epoch 373/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.330
2 - accuracy: 0.8675
Epoch 374/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.330
3 - accuracy: 0.8675 - loss: 0.3294 -
Epoch 375/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.329
9 - accuracy: 0.8652
Epoch 376/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.329
6 - accuracy: 0.8685
Epoch 377/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.329
7 - accuracy: 0.8650
Epoch 378/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.329
3 - accuracy: 0.8675
Epoch 379/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.329
3 - accuracy: 0.8662
Epoch 380/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.329
2 - accuracy: 0.8693
Epoch 381/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.328
5 - accuracy: 0.8673
Epoch 382/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.329
8 - accuracy: 0.8673
Epoch 383/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.329
5 - accuracy: 0.8677
Epoch 384/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.329
5 - accuracy: 0.8677
Epoch 385/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.328
7 - accuracy: 0.8670
Epoch 386/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.329
7 - accuracy: 0.8655
Epoch 387/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.329
1 - accuracy: 0.8673
Epoch 388/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.329
2 - accuracy: 0.8665
Epoch 389/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.328
9 - accuracy: 0.8692
Epoch 390/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.328
3 - accuracy: 0.8667
```

Epoch 391/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.328  
9 - accuracy: 0.8672  
Epoch 392/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.328  
5 - accuracy: 0.8668  
Epoch 393/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.328  
9 - accuracy: 0.8650  
Epoch 394/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.328  
4 - accuracy: 0.8675  
Epoch 395/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.328  
3 - accuracy: 0.8682  
Epoch 396/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.328  
9 - accuracy: 0.8668  
Epoch 397/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.328  
0 - accuracy: 0.8672  
Epoch 398/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.328  
0 - accuracy: 0.8668  
Epoch 399/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.328  
0 - accuracy: 0.8682  
Epoch 400/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.328  
2 - accuracy: 0.8680  
Epoch 401/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.327  
9 - accuracy: 0.8687  
Epoch 402/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.328  
6 - accuracy: 0.8668  
Epoch 403/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.327  
9 - accuracy: 0.8683  
Epoch 404/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.328  
0 - accuracy: 0.8665  
Epoch 405/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.327  
1 - accuracy: 0.8663  
Epoch 406/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.328  
2 - accuracy: 0.8678  
Epoch 407/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.328  
0 - accuracy: 0.8675  
Epoch 408/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.327  
7 - accuracy: 0.8685  
Epoch 409/500  
6030/6030 [=====] - 1s 210us/sample - loss: 0.328  
1 - accuracy: 0.8665  
Epoch 410/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.327  
0 - accuracy: 0.8668  
Epoch 411/500

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6030/6030 [=====] - 1s 183us/sample - loss: 0.327
5 - accuracy: 0.8677
Epoch 412/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.327
0 - accuracy: 0.8695
Epoch 413/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.327
2 - accuracy: 0.8655
Epoch 414/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.327
4 - accuracy: 0.8668
Epoch 415/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.327
5 - accuracy: 0.8687
Epoch 416/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.327
1 - accuracy: 0.8670
Epoch 417/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.327
7 - accuracy: 0.8670
Epoch 418/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.326
9 - accuracy: 0.8660
Epoch 419/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.327
2 - accuracy: 0.8670
Epoch 420/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.326
8 - accuracy: 0.8663
Epoch 421/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.327
1 - accuracy: 0.8657
Epoch 422/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.327
2 - accuracy: 0.8668
Epoch 423/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.327
3 - accuracy: 0.8678
Epoch 424/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.327
3 - accuracy: 0.8668
Epoch 425/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.326
9 - accuracy: 0.8673
Epoch 426/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.327
3 - accuracy: 0.8670
Epoch 427/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.326
8 - accuracy: 0.8680
Epoch 428/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.327
0 - accuracy: 0.8658
Epoch 429/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.326
2 - accuracy: 0.8672
Epoch 430/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.327
3 - accuracy: 0.8675
Epoch 431/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.326
```

```
7 - accuracy: 0.8673
Epoch 432/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.327
0 - accuracy: 0.8675
Epoch 433/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.327
0 - accuracy: 0.8650
Epoch 434/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.326
9 - accuracy: 0.8657
Epoch 435/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.326
7 - accuracy: 0.8668
Epoch 436/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.326
5 - accuracy: 0.8670
Epoch 437/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.326
5 - accuracy: 0.8678
Epoch 438/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.326
9 - accuracy: 0.8672
Epoch 439/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.326
4 - accuracy: 0.8682
Epoch 440/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.326
2 - accuracy: 0.8678
Epoch 441/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.327
0 - accuracy: 0.8677
Epoch 442/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.326
4 - accuracy: 0.8663
Epoch 443/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.326
6 - accuracy: 0.8672
Epoch 444/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.326
7 - accuracy: 0.8672
Epoch 445/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.326
6 - accuracy: 0.8667
Epoch 446/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.326
1 - accuracy: 0.8685
Epoch 447/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.326
8 - accuracy: 0.8663
Epoch 448/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.326
4 - accuracy: 0.8653
Epoch 449/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.326
5 - accuracy: 0.8668
Epoch 450/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.326
4 - accuracy: 0.8683
Epoch 451/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.325
8 - accuracy: 0.8675
```

Epoch 452/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.326  
6 - accuracy: 0.8667  
Epoch 453/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.326  
6 - accuracy: 0.8668  
Epoch 454/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.326  
7 - accuracy: 0.8670  
Epoch 455/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.326  
2 - accuracy: 0.8673  
Epoch 456/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.326  
7 - accuracy: 0.8680  
Epoch 457/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.326  
4 - accuracy: 0.8667  
Epoch 458/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.326  
6 - accuracy: 0.8647  
Epoch 459/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.326  
3 - accuracy: 0.8663  
Epoch 460/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.325  
9 - accuracy: 0.8692  
Epoch 461/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.326  
5 - accuracy: 0.8662  
Epoch 462/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.326  
4 - accuracy: 0.8657  
Epoch 463/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.326  
1 - accuracy: 0.8675  
Epoch 464/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.326  
4 - accuracy: 0.8675  
Epoch 465/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.326  
2 - accuracy: 0.8665  
Epoch 466/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.326  
3 - accuracy: 0.8668  
Epoch 467/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.326  
6 - accuracy: 0.8680  
Epoch 468/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.326  
4 - accuracy: 0.8660  
Epoch 469/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.325  
7 - accuracy: 0.8652  
Epoch 470/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.325  
9 - accuracy: 0.8683  
Epoch 471/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.325  
6 - accuracy: 0.8672  
Epoch 472/500



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6030/6030 [=====] - 1s 190us/sample - loss: 0.326
1 - accuracy: 0.8658
Epoch 473/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.325
7 - accuracy: 0.8672
Epoch 474/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.326
1 - accuracy: 0.8680
Epoch 475/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.326
6 - accuracy: 0.8653
Epoch 476/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.325
1 - accuracy: 0.8657
Epoch 477/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.326
0 - accuracy: 0.8662
Epoch 478/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.326
2 - accuracy: 0.8670
Epoch 479/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.325
0 - accuracy: 0.8672
Epoch 480/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.325
9 - accuracy: 0.8687
Epoch 481/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.326
3 - accuracy: 0.8675
Epoch 482/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.326
5 - accuracy: 0.8653
Epoch 483/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.325
8 - accuracy: 0.8657
Epoch 484/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.326
2 - accuracy: 0.8653
Epoch 485/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.326
0 - accuracy: 0.8675
Epoch 486/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.325
7 - accuracy: 0.8667
Epoch 487/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.325
8 - accuracy: 0.8678
Epoch 488/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.325
7 - accuracy: 0.8657
Epoch 489/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.325
9 - accuracy: 0.8658
Epoch 490/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.325
7 - accuracy: 0.8658
Epoch 491/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.326
2 - accuracy: 0.8682
Epoch 492/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.325
```

```
7 - accuracy: 0.8673
Epoch 493/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.325
8 - accuracy: 0.8658
Epoch 494/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.326
0 - accuracy: 0.8670
Epoch 495/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.325
7 - accuracy: 0.8668
Epoch 496/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.325
4 - accuracy: 0.8648
Epoch 497/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.326
3 - accuracy: 0.8660
Epoch 498/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.325
2 - accuracy: 0.8675
Epoch 499/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.326
1 - accuracy: 0.8665
Epoch 500/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.325
4 - accuracy: 0.8670
Train on 6030 samples
Epoch 1/500
6030/6030 [=====] - 2s 299us/sample - loss: 0.595
1 - accuracy: 0.7896
Epoch 2/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.457
0 - accuracy: 0.7910
Epoch 3/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.442
1 - accuracy: 0.7910
Epoch 4/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.436
3 - accuracy: 0.7910
Epoch 5/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.432
8 - accuracy: 0.7910
Epoch 6/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.429
7 - accuracy: 0.7910
Epoch 7/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.426
9 - accuracy: 0.7910
Epoch 8/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.424
3 - accuracy: 0.8148
Epoch 9/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.422
6 - accuracy: 0.8224
Epoch 10/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.421
3 - accuracy: 0.8239
Epoch 11/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.419
9 - accuracy: 0.8255
Epoch 12/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.418
```

```
6 - accuracy: 0.8264
Epoch 13/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.418
3 - accuracy: 0.8277
Epoch 14/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.417
2 - accuracy: 0.8287
Epoch 15/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.416
4 - accuracy: 0.8292
Epoch 16/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.415
6 - accuracy: 0.8280
Epoch 17/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.415
1 - accuracy: 0.8290
Epoch 18/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.414
4 - accuracy: 0.8294
Epoch 19/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.414
0 - accuracy: 0.8287
Epoch 20/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.413
7 - accuracy: 0.8310
Epoch 21/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.413
0 - accuracy: 0.8292
Epoch 22/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.412
8 - accuracy: 0.8307
Epoch 23/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.412
5 - accuracy: 0.8297
Epoch 24/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.411
9 - accuracy: 0.8299
Epoch 25/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.412
0 - accuracy: 0.8292
Epoch 26/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.411
4 - accuracy: 0.8299
Epoch 27/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.411
4 - accuracy: 0.8295
Epoch 28/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.411
0 - accuracy: 0.8305
Epoch 29/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.410
6 - accuracy: 0.8302
Epoch 30/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.410
2 - accuracy: 0.8297
Epoch 31/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.410
1 - accuracy: 0.8307
Epoch 32/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.410
1 - accuracy: 0.8305
```

Epoch 33/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.409  
8 - accuracy: 0.8299  
Epoch 34/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.409  
7 - accuracy: 0.8295  
Epoch 35/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.409  
5 - accuracy: 0.8297  
Epoch 36/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.409  
0 - accuracy: 0.8277  
Epoch 37/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.409  
2 - accuracy: 0.8297  
Epoch 38/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.409  
1 - accuracy: 0.8307  
Epoch 39/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.409  
0 - accuracy: 0.8292  
Epoch 40/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.408  
6 - accuracy: 0.8308  
Epoch 41/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.408  
5 - accuracy: 0.8308  
Epoch 42/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.408  
5 - accuracy: 0.8295  
Epoch 43/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.408  
6 - accuracy: 0.8297  
Epoch 44/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.408  
3 - accuracy: 0.8280  
Epoch 45/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.407  
9 - accuracy: 0.8302  
Epoch 46/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.407  
9 - accuracy: 0.8284  
Epoch 47/500  
6030/6030 [=====] - 1s 247us/sample - loss: 0.408  
2 - accuracy: 0.8277  
Epoch 48/500  
6030/6030 [=====] - 2s 260us/sample - loss: 0.407  
6 - accuracy: 0.8297  
Epoch 49/500  
6030/6030 [=====] - 2s 263us/sample - loss: 0.407  
3 - accuracy: 0.8279  
Epoch 50/500  
6030/6030 [=====] - 1s 226us/sample - loss: 0.407  
0 - accuracy: 0.8300  
Epoch 51/500  
6030/6030 [=====] - 1s 230us/sample - loss: 0.407  
3 - accuracy: 0.8302  
Epoch 52/500  
6030/6030 [=====] - 1s 233us/sample - loss: 0.407  
1 - accuracy: 0.8305  
Epoch 53/500

```
6030/6030 [=====] - 1s 199us/sample - loss: 0.407
2 - accuracy: 0.8290
Epoch 54/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.406
9 - accuracy: 0.8297
Epoch 55/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.406
9 - accuracy: 0.8302
Epoch 56/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.406
8 - accuracy: 0.8302
Epoch 57/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.406
7 - accuracy: 0.8292
Epoch 58/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.406
5 - accuracy: 0.8305
Epoch 59/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.406
1 - accuracy: 0.8290
Epoch 60/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.406
2 - accuracy: 0.8290
Epoch 61/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.406
1 - accuracy: 0.8300
Epoch 62/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.406
2 - accuracy: 0.8299
Epoch 63/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.405
9 - accuracy: 0.8297
Epoch 64/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.405
9 - accuracy: 0.8303
Epoch 65/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.405
9 - accuracy: 0.8310
Epoch 66/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.405
8 - accuracy: 0.8303
Epoch 67/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.405
6 - accuracy: 0.8315
Epoch 68/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.405
7 - accuracy: 0.8302
Epoch 69/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.405
5 - accuracy: 0.8302
Epoch 70/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.405
5 - accuracy: 0.8302
Epoch 71/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.405
4 - accuracy: 0.8294
Epoch 72/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.405
4 - accuracy: 0.8312
Epoch 73/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.405
```

```
2 - accuracy: 0.8294
Epoch 74/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.405
1 - accuracy: 0.8313
Epoch 75/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.405
3 - accuracy: 0.8312
Epoch 76/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.404
9 - accuracy: 0.8308
Epoch 77/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.404
9 - accuracy: 0.8303
Epoch 78/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.404
7 - accuracy: 0.8285
Epoch 79/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.405
2 - accuracy: 0.8305
Epoch 80/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.404
8 - accuracy: 0.8313
Epoch 81/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.405
0 - accuracy: 0.8300
Epoch 82/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.404
9 - accuracy: 0.8305
Epoch 83/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.404
8 - accuracy: 0.8312
Epoch 84/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.404
8 - accuracy: 0.8318
Epoch 85/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.404
5 - accuracy: 0.8294
Epoch 86/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.404
7 - accuracy: 0.8305
Epoch 87/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.404
3 - accuracy: 0.8292
Epoch 88/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.404
6 - accuracy: 0.8294
Epoch 89/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.404
3 - accuracy: 0.8307
Epoch 90/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.404
4 - accuracy: 0.8322
Epoch 91/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.404
6 - accuracy: 0.8299
Epoch 92/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.404
2 - accuracy: 0.8322
Epoch 93/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.404
0 - accuracy: 0.8290
```

Epoch 94/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.404  
7 - accuracy: 0.8303

Epoch 95/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.404  
0 - accuracy: 0.8308

Epoch 96/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.404  
3 - accuracy: 0.8300

Epoch 97/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.404  
4 - accuracy: 0.8302

Epoch 98/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.404  
2 - accuracy: 0.8317

Epoch 99/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.404  
3 - accuracy: 0.8315

Epoch 100/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.404  
1 - accuracy: 0.8307

Epoch 101/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.404  
4 - accuracy: 0.8303

Epoch 102/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.404  
1 - accuracy: 0.8305

Epoch 103/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.404  
1 - accuracy: 0.8295

Epoch 104/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.404  
1 - accuracy: 0.8297

Epoch 105/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.404  
0 - accuracy: 0.8297

Epoch 106/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.404  
1 - accuracy: 0.8295 - loss: 0.4061 - accuracy: 0.

Epoch 107/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.404  
2 - accuracy: 0.8307

Epoch 108/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.403  
9 - accuracy: 0.8297

Epoch 109/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.403  
8 - accuracy: 0.8300

Epoch 110/500  
6030/6030 [=====] - 1s 233us/sample - loss: 0.404  
1 - accuracy: 0.8315

Epoch 111/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.404  
0 - accuracy: 0.8340

Epoch 112/500  
6030/6030 [=====] - 1s 212us/sample - loss: 0.403  
9 - accuracy: 0.8305

Epoch 113/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.403  
9 - accuracy: 0.8317

Epoch 114/500

```
6030/6030 [=====] - 1s 190us/sample - loss: 0.403
6 - accuracy: 0.8308
Epoch 115/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.404
1 - accuracy: 0.8310
Epoch 116/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.403
7 - accuracy: 0.8287
Epoch 117/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.403
7 - accuracy: 0.8302
Epoch 118/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.403
4 - accuracy: 0.8310
Epoch 119/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.403
7 - accuracy: 0.8322
Epoch 120/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.403
8 - accuracy: 0.8287
Epoch 121/500
6030/6030 [=====] - 2s 254us/sample - loss: 0.403
7 - accuracy: 0.8305
Epoch 122/500
6030/6030 [=====] - 1s 244us/sample - loss: 0.403
6 - accuracy: 0.8312
Epoch 123/500
6030/6030 [=====] - 1s 247us/sample - loss: 0.403
5 - accuracy: 0.8317
Epoch 124/500
6030/6030 [=====] - 1s 249us/sample - loss: 0.403
5 - accuracy: 0.8300
Epoch 125/500
6030/6030 [=====] - 2s 249us/sample - loss: 0.403
7 - accuracy: 0.8295
Epoch 126/500
6030/6030 [=====] - 2s 249us/sample - loss: 0.403
8 - accuracy: 0.8312
Epoch 127/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.403
9 - accuracy: 0.8295
Epoch 128/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.403
6 - accuracy: 0.8320
Epoch 129/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.403
5 - accuracy: 0.8302
Epoch 130/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.403
6 - accuracy: 0.8300
Epoch 131/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.403
2 - accuracy: 0.8300
Epoch 132/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.403
6 - accuracy: 0.8315
Epoch 133/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.403
2 - accuracy: 0.8307
Epoch 134/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.403
```



```
8 - accuracy: 0.8290
Epoch 135/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.403
4 - accuracy: 0.8300
Epoch 136/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.403
3 - accuracy: 0.8310
Epoch 137/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.403
4 - accuracy: 0.8305
Epoch 138/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.403
4 - accuracy: 0.8323
Epoch 139/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.403
4 - accuracy: 0.8308
Epoch 140/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.403
1 - accuracy: 0.8303
Epoch 141/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.403
4 - accuracy: 0.8302
Epoch 142/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.403
3 - accuracy: 0.8308
Epoch 143/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.403
3 - accuracy: 0.8292
Epoch 144/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.403
4 - accuracy: 0.8312
Epoch 145/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.403
6 - accuracy: 0.8317
Epoch 146/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.403
4 - accuracy: 0.8302
Epoch 147/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.403
6 - accuracy: 0.8303
Epoch 148/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.403
4 - accuracy: 0.8307
Epoch 149/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.403
5 - accuracy: 0.8297
Epoch 150/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.403
5 - accuracy: 0.8292
Epoch 151/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.403
2 - accuracy: 0.8312
Epoch 152/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.403
2 - accuracy: 0.8313
Epoch 153/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.403
3 - accuracy: 0.8308
Epoch 154/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.403
4 - accuracy: 0.8300
```

Epoch 155/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.403  
2 - accuracy: 0.8308  
Epoch 156/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.403  
7 - accuracy: 0.8307  
Epoch 157/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.403  
2 - accuracy: 0.8302  
Epoch 158/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.403  
3 - accuracy: 0.8302  
Epoch 159/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.403  
4 - accuracy: 0.8299  
Epoch 160/500  
6030/6030 [=====] - 1s 219us/sample - loss: 0.403  
2 - accuracy: 0.8307  
Epoch 161/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.403  
3 - accuracy: 0.8295  
Epoch 162/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.403  
2 - accuracy: 0.8295  
Epoch 163/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.403  
5 - accuracy: 0.8302  
Epoch 164/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.403  
2 - accuracy: 0.8310  
Epoch 165/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.403  
3 - accuracy: 0.8305  
Epoch 166/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.403  
6 - accuracy: 0.8327  
Epoch 167/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.403  
4 - accuracy: 0.8308  
Epoch 168/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.403  
4 - accuracy: 0.8300  
Epoch 169/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.403  
3 - accuracy: 0.8312  
Epoch 170/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.403  
1 - accuracy: 0.8317  
Epoch 171/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.403  
0 - accuracy: 0.8343  
Epoch 172/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.403  
6 - accuracy: 0.8289  
Epoch 173/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.403  
0 - accuracy: 0.8302  
Epoch 174/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.403  
4 - accuracy: 0.8317  
Epoch 175/500

```
6030/6030 [=====] - 1s 200us/sample - loss: 0.403
0 - accuracy: 0.8295
Epoch 176/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.403
3 - accuracy: 0.8300
Epoch 177/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.403
2 - accuracy: 0.8317
Epoch 178/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.403
4 - accuracy: 0.8317
Epoch 179/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.403
0 - accuracy: 0.8313
Epoch 180/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.403
0 - accuracy: 0.8315
Epoch 181/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.403
2 - accuracy: 0.8305
Epoch 182/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.402
7 - accuracy: 0.8318
Epoch 183/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.403
5 - accuracy: 0.8302
Epoch 184/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.403
4 - accuracy: 0.8294
Epoch 185/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.403
2 - accuracy: 0.8308
Epoch 186/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.403
2 - accuracy: 0.8305
Epoch 187/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.403
2 - accuracy: 0.8315
Epoch 188/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.403
4 - accuracy: 0.8323
Epoch 189/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.403
1 - accuracy: 0.8305
Epoch 190/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.403
2 - accuracy: 0.8315
Epoch 191/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.403
3 - accuracy: 0.8307
Epoch 192/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.402
8 - accuracy: 0.8302
Epoch 193/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.403
2 - accuracy: 0.8300
Epoch 194/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.403
3 - accuracy: 0.8312
Epoch 195/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.403
```

```
1 - accuracy: 0.8312
Epoch 196/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.403
0 - accuracy: 0.8302
Epoch 197/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.402
9 - accuracy: 0.8322
Epoch 198/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.403
0 - accuracy: 0.8320
Epoch 199/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.403
0 - accuracy: 0.8318
Epoch 200/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.403
2 - accuracy: 0.8303
Epoch 201/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.403
2 - accuracy: 0.8308
Epoch 202/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.403
0 - accuracy: 0.8315
Epoch 203/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.402
7 - accuracy: 0.8322
Epoch 204/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.403
2 - accuracy: 0.8318
Epoch 205/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.403
2 - accuracy: 0.8312
Epoch 206/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.402
9 - accuracy: 0.8307
Epoch 207/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.403
3 - accuracy: 0.8305
Epoch 208/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.402
9 - accuracy: 0.8310
Epoch 209/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.403
1 - accuracy: 0.8318
Epoch 210/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.402
8 - accuracy: 0.8323
Epoch 211/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.403
2 - accuracy: 0.8300
Epoch 212/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.402
9 - accuracy: 0.8313
Epoch 213/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.403
1 - accuracy: 0.8289
Epoch 214/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.402
9 - accuracy: 0.8318
Epoch 215/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.403
1 - accuracy: 0.8312
```

Epoch 216/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.403  
1 - accuracy: 0.8308  
Epoch 217/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.402  
9 - accuracy: 0.8305  
Epoch 218/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.403  
0 - accuracy: 0.8320  
Epoch 219/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.402  
8 - accuracy: 0.8307  
Epoch 220/500  
6030/6030 [=====] - 1s 213us/sample - loss: 0.402  
8 - accuracy: 0.8312  
Epoch 221/500  
6030/6030 [=====] - 1s 217us/sample - loss: 0.403  
1 - accuracy: 0.8308  
Epoch 222/500  
6030/6030 [=====] - 1s 214us/sample - loss: 0.403  
0 - accuracy: 0.8312  
Epoch 223/500  
6030/6030 [=====] - 1s 223us/sample - loss: 0.403  
0 - accuracy: 0.8308  
Epoch 224/500  
6030/6030 [=====] - 1s 207us/sample - loss: 0.403  
0 - accuracy: 0.8295  
Epoch 225/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.402  
9 - accuracy: 0.8317  
Epoch 226/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.402  
9 - accuracy: 0.8305  
Epoch 227/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.402  
6 - accuracy: 0.8308  
Epoch 228/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.402  
5 - accuracy: 0.8308  
Epoch 229/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.402  
9 - accuracy: 0.8305  
Epoch 230/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.402  
6 - accuracy: 0.8308  
Epoch 231/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.402  
7 - accuracy: 0.8317  
Epoch 232/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.402  
5 - accuracy: 0.8313  
Epoch 233/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.402  
3 - accuracy: 0.8312  
Epoch 234/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.402  
0 - accuracy: 0.8317  
Epoch 235/500  
6030/6030 [=====] - 1s 207us/sample - loss: 0.402  
0 - accuracy: 0.8300  
Epoch 236/500

```
6030/6030 [=====] - 1s 210us/sample - loss: 0.402
0 - accuracy: 0.8312
Epoch 237/500
6030/6030 [=====] - 1s 224us/sample - loss: 0.402
1 - accuracy: 0.8303
Epoch 238/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.402
1 - accuracy: 0.8342
Epoch 239/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.401
7 - accuracy: 0.8300
Epoch 240/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.401
3 - accuracy: 0.8323
Epoch 241/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.401
8 - accuracy: 0.8320
Epoch 242/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.401
1 - accuracy: 0.8323
Epoch 243/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.401
9 - accuracy: 0.8308
Epoch 244/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.401
4 - accuracy: 0.8305
Epoch 245/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.401
4 - accuracy: 0.8320
Epoch 246/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.401
2 - accuracy: 0.8299
Epoch 247/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.400
9 - accuracy: 0.8300
Epoch 248/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.400
9 - accuracy: 0.8323
Epoch 249/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.400
8 - accuracy: 0.8323
Epoch 250/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.400
9 - accuracy: 0.8313
Epoch 251/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.400
5 - accuracy: 0.8317
Epoch 252/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.401
1 - accuracy: 0.8325
Epoch 253/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.400
9 - accuracy: 0.8297
Epoch 254/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.400
6 - accuracy: 0.8328
Epoch 255/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.400
5 - accuracy: 0.8318
Epoch 256/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.400
```

```
1 - accuracy: 0.8315
Epoch 257/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.400
1 - accuracy: 0.8313
Epoch 258/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.400
2 - accuracy: 0.8315
Epoch 259/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.400
3 - accuracy: 0.8325
Epoch 260/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.399
9 - accuracy: 0.8295
Epoch 261/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.400
0 - accuracy: 0.8297
Epoch 262/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.399
8 - accuracy: 0.8333
Epoch 263/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.399
9 - accuracy: 0.8315
Epoch 264/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.399
8 - accuracy: 0.8315
Epoch 265/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.399
7 - accuracy: 0.8310
Epoch 266/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.399
8 - accuracy: 0.8313
Epoch 267/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.399
6 - accuracy: 0.8312
Epoch 268/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.399
2 - accuracy: 0.8332
Epoch 269/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.399
5 - accuracy: 0.8325
Epoch 270/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.399
6 - accuracy: 0.8322
Epoch 271/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.399
4 - accuracy: 0.8312
Epoch 272/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.399
0 - accuracy: 0.8320
Epoch 273/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.399
4 - accuracy: 0.8325
Epoch 274/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.399
4 - accuracy: 0.8328
Epoch 275/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.399
0 - accuracy: 0.8327
Epoch 276/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.398
8 - accuracy: 0.8308
```

Epoch 277/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.399  
2 - accuracy: 0.8322  
Epoch 278/500  
6030/6030 [=====] - 1s 220us/sample - loss: 0.399  
0 - accuracy: 0.8302  
Epoch 279/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.399  
2 - accuracy: 0.8308  
Epoch 280/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.398  
9 - accuracy: 0.8328  
Epoch 281/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.398  
7 - accuracy: 0.8315  
Epoch 282/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.398  
9 - accuracy: 0.8322  
Epoch 283/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.399  
1 - accuracy: 0.8312  
Epoch 284/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.398  
5 - accuracy: 0.8318  
Epoch 285/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.398  
5 - accuracy: 0.8307  
Epoch 286/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.398  
1 - accuracy: 0.8335  
Epoch 287/500  
6030/6030 [=====] - 1s 245us/sample - loss: 0.398  
7 - accuracy: 0.8320  
Epoch 288/500  
6030/6030 [=====] - 1s 211us/sample - loss: 0.398  
8 - accuracy: 0.8312  
Epoch 289/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.398  
5 - accuracy: 0.8327  
Epoch 290/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.398  
9 - accuracy: 0.8315  
Epoch 291/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.398  
3 - accuracy: 0.8318  
Epoch 292/500  
6030/6030 [=====] - 1s 212us/sample - loss: 0.398  
5 - accuracy: 0.8308  
Epoch 293/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.398  
6 - accuracy: 0.8312  
Epoch 294/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.398  
5 - accuracy: 0.8312  
Epoch 295/500  
6030/6030 [=====] - 1s 220us/sample - loss: 0.398  
3 - accuracy: 0.8325  
Epoch 296/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.398  
1 - accuracy: 0.8307  
Epoch 297/500



```
6030/6030 [=====] - 1s 195us/sample - loss: 0.398
1 - accuracy: 0.8308
Epoch 298/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.398
2 - accuracy: 0.8315
Epoch 299/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.398
2 - accuracy: 0.8299
Epoch 300/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.398
1 - accuracy: 0.8307
Epoch 301/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.397
9 - accuracy: 0.8320
Epoch 302/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.398
1 - accuracy: 0.8333
Epoch 303/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.398
0 - accuracy: 0.8330
Epoch 304/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.398
1 - accuracy: 0.8313
Epoch 305/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.397
6 - accuracy: 0.8318
Epoch 306/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.397
7 - accuracy: 0.8317
Epoch 307/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.397
6 - accuracy: 0.8317
Epoch 308/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.397
3 - accuracy: 0.8315
Epoch 309/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.397
9 - accuracy: 0.8310
Epoch 310/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.397
7 - accuracy: 0.8312
Epoch 311/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.397
8 - accuracy: 0.8307
Epoch 312/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.397
6 - accuracy: 0.8315
Epoch 313/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.397
9 - accuracy: 0.8332
Epoch 314/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.397
7 - accuracy: 0.8322
Epoch 315/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.397
7 - accuracy: 0.8312
Epoch 316/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.397
8 - accuracy: 0.8312
Epoch 317/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.397
```

```
7 - accuracy: 0.8318
Epoch 318/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.397
8 - accuracy: 0.8312
Epoch 319/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.397
5 - accuracy: 0.8310
Epoch 320/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.397
7 - accuracy: 0.8312
Epoch 321/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.397
4 - accuracy: 0.8299
Epoch 322/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.397
5 - accuracy: 0.8317
Epoch 323/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.397
9 - accuracy: 0.8310
Epoch 324/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.397
5 - accuracy: 0.8317
Epoch 325/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.397
7 - accuracy: 0.8322
Epoch 326/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.397
8 - accuracy: 0.8310
Epoch 327/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.397
4 - accuracy: 0.8317
Epoch 328/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.397
3 - accuracy: 0.8318
Epoch 329/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.397
6 - accuracy: 0.8318
Epoch 330/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.397
4 - accuracy: 0.8308
Epoch 331/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.397
4 - accuracy: 0.8313
Epoch 332/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.397
3 - accuracy: 0.8323
Epoch 333/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.397
4 - accuracy: 0.8317
Epoch 334/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.396
5 - accuracy: 0.8317
Epoch 335/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.397
8 - accuracy: 0.8310
Epoch 336/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.397
3 - accuracy: 0.8320
Epoch 337/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.397
1 - accuracy: 0.8317
```

Epoch 338/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.397  
0 - accuracy: 0.8320  
Epoch 339/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.397  
3 - accuracy: 0.8325  
Epoch 340/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.397  
2 - accuracy: 0.8317  
Epoch 341/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.397  
2 - accuracy: 0.8305  
Epoch 342/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.397  
1 - accuracy: 0.8303  
Epoch 343/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.397  
2 - accuracy: 0.8318  
Epoch 344/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.396  
8 - accuracy: 0.8345  
Epoch 345/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.396  
9 - accuracy: 0.8333  
Epoch 346/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.397  
1 - accuracy: 0.8322  
Epoch 347/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.397  
1 - accuracy: 0.8325  
Epoch 348/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.397  
2 - accuracy: 0.8318  
Epoch 349/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.397  
1 - accuracy: 0.8315  
Epoch 350/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.396  
9 - accuracy: 0.8323  
Epoch 351/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.396  
9 - accuracy: 0.8325  
Epoch 352/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.396  
8 - accuracy: 0.8317  
Epoch 353/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.397  
0 - accuracy: 0.8310  
Epoch 354/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.397  
1 - accuracy: 0.8320  
Epoch 355/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.396  
7 - accuracy: 0.8322  
Epoch 356/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.396  
9 - accuracy: 0.8320  
Epoch 357/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.396  
6 - accuracy: 0.8308  
Epoch 358/500

```
6030/6030 [=====] - 1s 192us/sample - loss: 0.396
7 - accuracy: 0.8327
Epoch 359/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.396
6 - accuracy: 0.8323
Epoch 360/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.396
7 - accuracy: 0.8327
Epoch 361/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
8 - accuracy: 0.8310
Epoch 362/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
8 - accuracy: 0.8308
Epoch 363/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
8 - accuracy: 0.8317
Epoch 364/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.396
8 - accuracy: 0.8312
Epoch 365/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
6 - accuracy: 0.8333
Epoch 366/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.396
7 - accuracy: 0.8325
Epoch 367/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.396
4 - accuracy: 0.8328
Epoch 368/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.396
6 - accuracy: 0.8327
Epoch 369/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.396
8 - accuracy: 0.8330
Epoch 370/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.396
5 - accuracy: 0.8318
Epoch 371/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.397
2 - accuracy: 0.8338
Epoch 372/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.396
8 - accuracy: 0.8327
Epoch 373/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
4 - accuracy: 0.8313
Epoch 374/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.396
7 - accuracy: 0.8308
Epoch 375/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.396
6 - accuracy: 0.8332
Epoch 376/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.396
5 - accuracy: 0.8308
Epoch 377/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.396
4 - accuracy: 0.8325
Epoch 378/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.396
```

```
8 - accuracy: 0.8317
Epoch 379/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.396
7 - accuracy: 0.8322
Epoch 380/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.396
9 - accuracy: 0.8307
Epoch 381/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.396
8 - accuracy: 0.8317
Epoch 382/500
6030/6030 [=====] - ETA: 0s - loss: 0.3971 - accu
racy: 0.83 - 1s 190us/sample - loss: 0.3962 - accuracy: 0.8322
Epoch 383/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.396
6 - accuracy: 0.8335
Epoch 384/500
6030/6030 [=====] - 2s 251us/sample - loss: 0.396
6 - accuracy: 0.8308
Epoch 385/500
6030/6030 [=====] - 2s 251us/sample - loss: 0.396
1 - accuracy: 0.8322
Epoch 386/500
6030/6030 [=====] - 2s 251us/sample - loss: 0.396
7 - accuracy: 0.8327
Epoch 387/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.396
6 - accuracy: 0.8313
Epoch 388/500
6030/6030 [=====] - 1s 248us/sample - loss: 0.396
2 - accuracy: 0.8307
Epoch 389/500
6030/6030 [=====] - 1s 238us/sample - loss: 0.396
5 - accuracy: 0.8322
Epoch 390/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.396
6 - accuracy: 0.8332
Epoch 391/500
6030/6030 [=====] - 1s 244us/sample - loss: 0.396
7 - accuracy: 0.8317
Epoch 392/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.396
3 - accuracy: 0.8328
Epoch 393/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.396
4 - accuracy: 0.8323
Epoch 394/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.396
5 - accuracy: 0.8313
Epoch 395/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.396
3 - accuracy: 0.8328
Epoch 396/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.396
7 - accuracy: 0.8312
Epoch 397/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.396
5 - accuracy: 0.8317
Epoch 398/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.396
4 - accuracy: 0.8327
```

Epoch 399/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.396  
7 - accuracy: 0.8320  
Epoch 400/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.396  
4 - accuracy: 0.8322  
Epoch 401/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.396  
4 - accuracy: 0.8333  
Epoch 402/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.396  
3 - accuracy: 0.8317  
Epoch 403/500  
6030/6030 [=====] - ETA: 0s - loss: 0.3959 - accuracy: 0.83 - 1s 189us/sample - loss: 0.3964 - accuracy: 0.8323  
Epoch 404/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.396  
7 - accuracy: 0.8325  
Epoch 405/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.396  
5 - accuracy: 0.8322  
Epoch 406/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.396  
5 - accuracy: 0.8310  
Epoch 407/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.396  
3 - accuracy: 0.8317  
Epoch 408/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.396  
0 - accuracy: 0.8322  
Epoch 409/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.396  
5 - accuracy: 0.8333  
Epoch 410/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.396  
4 - accuracy: 0.8318  
Epoch 411/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.396  
5 - accuracy: 0.8322  
Epoch 412/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.396  
4 - accuracy: 0.8315  
Epoch 413/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.396  
3 - accuracy: 0.8305  
Epoch 414/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.396  
5 - accuracy: 0.8325  
Epoch 415/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.395  
9 - accuracy: 0.8315  
Epoch 416/500  
6030/6030 [=====] - 1s 237us/sample - loss: 0.396  
4 - accuracy: 0.8325  
Epoch 417/500  
6030/6030 [=====] - 1s 219us/sample - loss: 0.396  
4 - accuracy: 0.8327  
Epoch 418/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.395  
7 - accuracy: 0.8335  
Epoch 419/500

```
6030/6030 [=====] - 1s 185us/sample - loss: 0.396
5 - accuracy: 0.8323
Epoch 420/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.396
3 - accuracy: 0.8323
Epoch 421/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.396
6 - accuracy: 0.8330
Epoch 422/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.396
5 - accuracy: 0.8307
Epoch 423/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.396
7 - accuracy: 0.8322
Epoch 424/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.396
1 - accuracy: 0.8310
Epoch 425/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.396
2 - accuracy: 0.8323
Epoch 426/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
0 - accuracy: 0.8312
Epoch 427/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.396
5 - accuracy: 0.8313
Epoch 428/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.396
3 - accuracy: 0.8318
Epoch 429/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.396
4 - accuracy: 0.8325
Epoch 430/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
2 - accuracy: 0.8323
Epoch 431/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.396
2 - accuracy: 0.8308 - loss: 0.3907 -
Epoch 432/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.396
3 - accuracy: 0.8320
Epoch 433/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.396
4 - accuracy: 0.8315
Epoch 434/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.396
0 - accuracy: 0.8325
Epoch 435/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.396
5 - accuracy: 0.8320
Epoch 436/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.395
7 - accuracy: 0.8312
Epoch 437/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.396
1 - accuracy: 0.8322
Epoch 438/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.396
2 - accuracy: 0.8325
Epoch 439/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.396
```

```
0 - accuracy: 0.8327
Epoch 440/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
2 - accuracy: 0.8313
Epoch 441/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.395
8 - accuracy: 0.8317
Epoch 442/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.396
3 - accuracy: 0.8323
Epoch 443/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.396
4 - accuracy: 0.8320
Epoch 444/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.396
0 - accuracy: 0.8312
Epoch 445/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.396
0 - accuracy: 0.8325
Epoch 446/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.396
3 - accuracy: 0.8317
Epoch 447/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.395
8 - accuracy: 0.8325
Epoch 448/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.396
1 - accuracy: 0.8315
Epoch 449/500
6030/6030 [=====] - 2s 268us/sample - loss: 0.396
1 - accuracy: 0.8320
Epoch 450/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.396
2 - accuracy: 0.8315
Epoch 451/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.395
7 - accuracy: 0.8313
Epoch 452/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.396
3 - accuracy: 0.8313
Epoch 453/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.396
0 - accuracy: 0.8317
Epoch 454/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.395
9 - accuracy: 0.8323
Epoch 455/500
6030/6030 [=====] - 2s 259us/sample - loss: 0.396
1 - accuracy: 0.8312
Epoch 456/500
6030/6030 [=====] - 2s 311us/sample - loss: 0.396
3 - accuracy: 0.8315
Epoch 457/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.396
1 - accuracy: 0.8313
Epoch 458/500
6030/6030 [=====] - 1s 239us/sample - loss: 0.395
8 - accuracy: 0.8313
Epoch 459/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.396
1 - accuracy: 0.8322
```



Epoch 460/500  
6030/6030 [=====] - 1s 211us/sample - loss: 0.396  
0 - accuracy: 0.8318  
Epoch 461/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.395  
9 - accuracy: 0.8320  
Epoch 462/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.396  
0 - accuracy: 0.8318  
Epoch 463/500  
6030/6030 [=====] - 2s 265us/sample - loss: 0.396  
3 - accuracy: 0.8327  
Epoch 464/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.396  
1 - accuracy: 0.8320  
Epoch 465/500  
6030/6030 [=====] - 1s 217us/sample - loss: 0.395  
9 - accuracy: 0.8320  
Epoch 466/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.396  
0 - accuracy: 0.8323  
Epoch 467/500  
6030/6030 [=====] - 1s 210us/sample - loss: 0.396  
1 - accuracy: 0.8320  
Epoch 468/500  
6030/6030 [=====] - 2s 254us/sample - loss: 0.396  
4 - accuracy: 0.8310  
Epoch 469/500  
6030/6030 [=====] - 2s 313us/sample - loss: 0.396  
2 - accuracy: 0.8312  
Epoch 470/500  
6030/6030 [=====] - 2s 282us/sample - loss: 0.396  
4 - accuracy: 0.8303 - loss: 0.3973 - accuracy: 0.  
Epoch 471/500  
6030/6030 [=====] - 2s 290us/sample - loss: 0.396  
3 - accuracy: 0.8315  
Epoch 472/500  
6030/6030 [=====] - 1s 244us/sample - loss: 0.395  
8 - accuracy: 0.8325  
Epoch 473/500  
6030/6030 [=====] - 2s 278us/sample - loss: 0.396  
0 - accuracy: 0.8332  
Epoch 474/500  
6030/6030 [=====] - 2s 310us/sample - loss: 0.396  
1 - accuracy: 0.8322  
Epoch 475/500  
6030/6030 [=====] - 1s 247us/sample - loss: 0.396  
2 - accuracy: 0.8327  
Epoch 476/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.395  
9 - accuracy: 0.8318  
Epoch 477/500  
6030/6030 [=====] - 1s 220us/sample - loss: 0.395  
9 - accuracy: 0.8325  
Epoch 478/500  
6030/6030 [=====] - 1s 210us/sample - loss: 0.396  
0 - accuracy: 0.8310  
Epoch 479/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.395  
9 - accuracy: 0.8332  
Epoch 480/500

```
6030/6030 [=====] - 1s 247us/sample - loss: 0.395
9 - accuracy: 0.8333
Epoch 481/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.395
8 - accuracy: 0.8323
Epoch 482/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.396
0 - accuracy: 0.8323
Epoch 483/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.396
0 - accuracy: 0.8320
Epoch 484/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.396
3 - accuracy: 0.8327
Epoch 485/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.396
2 - accuracy: 0.8315
Epoch 486/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.395
8 - accuracy: 0.8322
Epoch 487/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.395
1 - accuracy: 0.8330
Epoch 488/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.395
8 - accuracy: 0.8318
Epoch 489/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.396
1 - accuracy: 0.8335
Epoch 490/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.395
8 - accuracy: 0.8342
Epoch 491/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.395
7 - accuracy: 0.8323
Epoch 492/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.396
0 - accuracy: 0.8322
Epoch 493/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.395
9 - accuracy: 0.8323
Epoch 494/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.395
8 - accuracy: 0.8320
Epoch 495/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.395
9 - accuracy: 0.8322
Epoch 496/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.395
9 - accuracy: 0.8342
Epoch 497/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.395
6 - accuracy: 0.8327
Epoch 498/500
6030/6030 [=====] - 2s 274us/sample - loss: 0.395
9 - accuracy: 0.8317
Epoch 499/500
6030/6030 [=====] - 2s 271us/sample - loss: 0.396
0 - accuracy: 0.8323
Epoch 500/500
6030/6030 [=====] - 2s 272us/sample - loss: 0.395
```

```
7 - accuracy: 0.8323
Train on 6030 samples
Epoch 1/500
6030/6030 [=====] - 2s 398us/sample - loss: 0.610
3 - accuracy: 0.7914
Epoch 2/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.460
9 - accuracy: 0.7935
Epoch 3/500
6030/6030 [=====] - 1s 224us/sample - loss: 0.440
7 - accuracy: 0.7935
Epoch 4/500
6030/6030 [=====] - 2s 253us/sample - loss: 0.435
9 - accuracy: 0.7935
Epoch 5/500
6030/6030 [=====] - 2s 313us/sample - loss: 0.433
6 - accuracy: 0.7935
Epoch 6/500
6030/6030 [=====] - ETA: 0s - loss: 0.4319 - accuracy: 0.79 - 2s 303us/sample - loss: 0.4320 - accuracy: 0.7935
Epoch 7/500
6030/6030 [=====] - 2s 291us/sample - loss: 0.430
6 - accuracy: 0.7935
Epoch 8/500
6030/6030 [=====] - 2s 272us/sample - loss: 0.429
0 - accuracy: 0.7935
Epoch 9/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.427
1 - accuracy: 0.7935
Epoch 10/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.424
9 - accuracy: 0.8032
Epoch 11/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.422
9 - accuracy: 0.8212
Epoch 12/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.421
5 - accuracy: 0.8221
Epoch 13/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.420
0 - accuracy: 0.8239
Epoch 14/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.418
6 - accuracy: 0.8264
Epoch 15/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.417
6 - accuracy: 0.8275
Epoch 16/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.416
7 - accuracy: 0.8290
Epoch 17/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.415
9 - accuracy: 0.8299
Epoch 18/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.414
9 - accuracy: 0.8290
Epoch 19/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.414
3 - accuracy: 0.8305
Epoch 20/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.413
```

```
5 - accuracy: 0.8320 - loss: 0.429
Epoch 21/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.413
1 - accuracy: 0.8308
Epoch 22/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.412
4 - accuracy: 0.8328
Epoch 23/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.412
0 - accuracy: 0.8323
Epoch 24/500
6030/6030 [=====] - 1s 236us/sample - loss: 0.411
5 - accuracy: 0.8338
Epoch 25/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.410
9 - accuracy: 0.8348
Epoch 26/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.410
4 - accuracy: 0.8342
Epoch 27/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.410
2 - accuracy: 0.8345
Epoch 28/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.409
5 - accuracy: 0.8353
Epoch 29/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.409
3 - accuracy: 0.8342
Epoch 30/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.409
0 - accuracy: 0.8342
Epoch 31/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.408
5 - accuracy: 0.8357
Epoch 32/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.407
8 - accuracy: 0.8352
Epoch 33/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.408
0 - accuracy: 0.8350
Epoch 34/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.407
3 - accuracy: 0.8353
Epoch 35/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.407
4 - accuracy: 0.8363
Epoch 36/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.407
2 - accuracy: 0.8353
Epoch 37/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.406
9 - accuracy: 0.8353
Epoch 38/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.406
8 - accuracy: 0.8362
Epoch 39/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.406
2 - accuracy: 0.8345
Epoch 40/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.406
3 - accuracy: 0.8350
```

Epoch 41/500  
6030/6030 [=====] - 1s 207us/sample - loss: 0.405  
7 - accuracy: 0.8348

Epoch 42/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.405  
6 - accuracy: 0.8358

Epoch 43/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.405  
7 - accuracy: 0.8357

Epoch 44/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.405  
2 - accuracy: 0.8345

Epoch 45/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.404  
8 - accuracy: 0.8353

Epoch 46/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.404  
4 - accuracy: 0.8350

Epoch 47/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.404  
2 - accuracy: 0.8352

Epoch 48/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.403  
7 - accuracy: 0.8365

Epoch 49/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.403  
2 - accuracy: 0.8348

Epoch 50/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.402  
9 - accuracy: 0.8357

Epoch 51/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.402  
9 - accuracy: 0.8358

Epoch 52/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.402  
7 - accuracy: 0.8358

Epoch 53/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.402  
4 - accuracy: 0.8357

Epoch 54/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.402  
2 - accuracy: 0.8352

Epoch 55/500  
6030/6030 [=====] - 1s 213us/sample - loss: 0.401  
7 - accuracy: 0.8360

Epoch 56/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.401  
6 - accuracy: 0.8365

Epoch 57/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.401  
3 - accuracy: 0.8357

Epoch 58/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.401  
0 - accuracy: 0.8358

Epoch 59/500  
6030/6030 [=====] - 1s 211us/sample - loss: 0.400  
8 - accuracy: 0.8353

Epoch 60/500  
6030/6030 [=====] - 1s 210us/sample - loss: 0.400  
6 - accuracy: 0.8362

Epoch 61/500

```
6030/6030 [=====] - 1s 200us/sample - loss: 0.400
2 - accuracy: 0.8358
Epoch 62/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.400
4 - accuracy: 0.8362
Epoch 63/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.399
7 - accuracy: 0.8367
Epoch 64/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.400
0 - accuracy: 0.8368
Epoch 65/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.399
6 - accuracy: 0.8363
Epoch 66/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.399
1 - accuracy: 0.8348
Epoch 67/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.399
4 - accuracy: 0.8355
Epoch 68/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.398
8 - accuracy: 0.8350
Epoch 69/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.398
9 - accuracy: 0.8378
Epoch 70/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.398
7 - accuracy: 0.8357
Epoch 71/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.398
8 - accuracy: 0.8380
Epoch 72/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.398
3 - accuracy: 0.8358
Epoch 73/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.398
4 - accuracy: 0.8371
Epoch 74/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.398
4 - accuracy: 0.8360
Epoch 75/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.397
8 - accuracy: 0.8373
Epoch 76/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.397
9 - accuracy: 0.8375
Epoch 77/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.397
7 - accuracy: 0.8365
Epoch 78/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.397
9 - accuracy: 0.8363
Epoch 79/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.397
5 - accuracy: 0.8380
Epoch 80/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.397
8 - accuracy: 0.8368
Epoch 81/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.396
```

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8 - accuracy: 0.8381
Epoch 82/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.397
4 - accuracy: 0.8350
Epoch 83/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
4 - accuracy: 0.8370
Epoch 84/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.397
4 - accuracy: 0.8365
Epoch 85/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.397
0 - accuracy: 0.8363
Epoch 86/500
6030/6030 [=====] - 2s 273us/sample - loss: 0.396
5 - accuracy: 0.8365
Epoch 87/500
6030/6030 [=====] - 2s 281us/sample - loss: 0.397
0 - accuracy: 0.8358
Epoch 88/500
6030/6030 [=====] - 1s 239us/sample - loss: 0.396
7 - accuracy: 0.8371
Epoch 89/500
6030/6030 [=====] - 1s 233us/sample - loss: 0.396
5 - accuracy: 0.8358
Epoch 90/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.396
8 - accuracy: 0.8365
Epoch 91/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.396
7 - accuracy: 0.8363
Epoch 92/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.396
4 - accuracy: 0.8383
Epoch 93/500
6030/6030 [=====] - 1s 233us/sample - loss: 0.396
3 - accuracy: 0.8358
Epoch 94/500
6030/6030 [=====] - 2s 296us/sample - loss: 0.396
2 - accuracy: 0.8355
Epoch 95/500
6030/6030 [=====] - 2s 315us/sample - loss: 0.396
5 - accuracy: 0.8348
Epoch 96/500
6030/6030 [=====] - 2s 313us/sample - loss: 0.396
0 - accuracy: 0.8355
Epoch 97/500
6030/6030 [=====] - 2s 272us/sample - loss: 0.396
1 - accuracy: 0.8350
Epoch 98/500
6030/6030 [=====] - 2s 276us/sample - loss: 0.396
1 - accuracy: 0.8363
Epoch 99/500
6030/6030 [=====] - 2s 295us/sample - loss: 0.396
1 - accuracy: 0.8367
Epoch 100/500
6030/6030 [=====] - 2s 282us/sample - loss: 0.395
8 - accuracy: 0.8360
Epoch 101/500
6030/6030 [=====] - 1s 232us/sample - loss: 0.395
1 - accuracy: 0.8362
```

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Epoch 102/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.395
6 - accuracy: 0.8363
Epoch 103/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.395
3 - accuracy: 0.8381
Epoch 104/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.395
4 - accuracy: 0.8365
Epoch 105/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.395
4 - accuracy: 0.8368
Epoch 106/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.394
9 - accuracy: 0.8360
Epoch 107/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.395
1 - accuracy: 0.8355
Epoch 108/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.394
5 - accuracy: 0.8383
Epoch 109/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.394
9 - accuracy: 0.8365
Epoch 110/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.394
5 - accuracy: 0.8350
Epoch 111/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.394
8 - accuracy: 0.8357
Epoch 112/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.394
3 - accuracy: 0.8370
Epoch 113/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.394
6 - accuracy: 0.8370
Epoch 114/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.394
1 - accuracy: 0.8375
Epoch 115/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.393
9 - accuracy: 0.8363
Epoch 116/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.394
0 - accuracy: 0.8385
Epoch 117/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.393
5 - accuracy: 0.8362
Epoch 118/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.393
3 - accuracy: 0.8371
Epoch 119/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.392
9 - accuracy: 0.8371
Epoch 120/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.392
8 - accuracy: 0.8368
Epoch 121/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.392
7 - accuracy: 0.8365
Epoch 122/500
```



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6030/6030 [=====] - 1s 200us/sample - loss: 0.392
5 - accuracy: 0.8385
Epoch 123/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.392
7 - accuracy: 0.8362
Epoch 124/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.391
8 - accuracy: 0.8383
Epoch 125/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.391
5 - accuracy: 0.8388
Epoch 126/500
6030/6030 [=====] - 2s 258us/sample - loss: 0.391
1 - accuracy: 0.8373
Epoch 127/500
6030/6030 [=====] - 2s 255us/sample - loss: 0.390
8 - accuracy: 0.8376
Epoch 128/500
6030/6030 [=====] - 2s 271us/sample - loss: 0.390
4 - accuracy: 0.8391
Epoch 129/500
6030/6030 [=====] - 2s 257us/sample - loss: 0.389
8 - accuracy: 0.8388
Epoch 130/500
6030/6030 [=====] - 2s 259us/sample - loss: 0.389
4 - accuracy: 0.8395
Epoch 131/500
6030/6030 [=====] - 2s 270us/sample - loss: 0.389
0 - accuracy: 0.8386
Epoch 132/500
6030/6030 [=====] - 2s 263us/sample - loss: 0.388
7 - accuracy: 0.8376
Epoch 133/500
6030/6030 [=====] - 2s 263us/sample - loss: 0.388
3 - accuracy: 0.8400
Epoch 134/500
6030/6030 [=====] - 2s 264us/sample - loss: 0.387
9 - accuracy: 0.8385
Epoch 135/500
6030/6030 [=====] - 1s 244us/sample - loss: 0.387
7 - accuracy: 0.8403 - loss: 0.3947 -
Epoch 136/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.387
2 - accuracy: 0.8388
Epoch 137/500
6030/6030 [=====] - 1s 236us/sample - loss: 0.386
8 - accuracy: 0.8383
Epoch 138/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.385
9 - accuracy: 0.8403
Epoch 139/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.386
1 - accuracy: 0.8403 - loss: 0.394
Epoch 140/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.385
7 - accuracy: 0.8390
Epoch 141/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.384
8 - accuracy: 0.8395
Epoch 142/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.384
```

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3 - accuracy: 0.8403
Epoch 143/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.384
1 - accuracy: 0.8411
Epoch 144/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.383
2 - accuracy: 0.8401
Epoch 145/500
6030/6030 [=====] - 2s 285us/sample - loss: 0.382
4 - accuracy: 0.8400
Epoch 146/500
6030/6030 [=====] - 2s 252us/sample - loss: 0.381
9 - accuracy: 0.8416
Epoch 147/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.381
3 - accuracy: 0.8420
Epoch 148/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.380
4 - accuracy: 0.8405
Epoch 149/500
6030/6030 [=====] - 2s 293us/sample - loss: 0.379
7 - accuracy: 0.8415
Epoch 150/500
6030/6030 [=====] - 1s 236us/sample - loss: 0.378
4 - accuracy: 0.8410 - loss: 0.378
Epoch 151/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.377
0 - accuracy: 0.8418
Epoch 152/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.375
0 - accuracy: 0.8418
Epoch 153/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.372
8 - accuracy: 0.8433
Epoch 154/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.370
9 - accuracy: 0.8433
Epoch 155/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.369
5 - accuracy: 0.8430
Epoch 156/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.368
0 - accuracy: 0.8456
Epoch 157/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.366
8 - accuracy: 0.8451
Epoch 158/500
6030/6030 [=====] - 1s 232us/sample - loss: 0.364
7 - accuracy: 0.8456
Epoch 159/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.363
3 - accuracy: 0.8489
Epoch 160/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.361
7 - accuracy: 0.8486
Epoch 161/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.360
2 - accuracy: 0.8502
Epoch 162/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.359
1 - accuracy: 0.8509 - los
```

Epoch 163/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.357  
6 - accuracy: 0.8514  
Epoch 164/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.356  
1 - accuracy: 0.8554  
Epoch 165/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.355  
5 - accuracy: 0.8549  
Epoch 166/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.354  
0 - accuracy: 0.8549  
Epoch 167/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.352  
4 - accuracy: 0.8566  
Epoch 168/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.352  
2 - accuracy: 0.8585  
Epoch 169/500  
6030/6030 [=====] - 2s 262us/sample - loss: 0.350  
5 - accuracy: 0.8569  
Epoch 170/500  
6030/6030 [=====] - 1s 233us/sample - loss: 0.350  
2 - accuracy: 0.8610  
Epoch 171/500  
6030/6030 [=====] - 2s 269us/sample - loss: 0.349  
0 - accuracy: 0.8610  
Epoch 172/500  
6030/6030 [=====] - 1s 236us/sample - loss: 0.349  
3 - accuracy: 0.8580  
Epoch 173/500  
6030/6030 [=====] - 2s 257us/sample - loss: 0.348  
8 - accuracy: 0.8612  
Epoch 174/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.347  
7 - accuracy: 0.8594  
Epoch 175/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.347  
3 - accuracy: 0.8585  
Epoch 176/500  
6030/6030 [=====] - 1s 217us/sample - loss: 0.346  
6 - accuracy: 0.8602  
Epoch 177/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.346  
4 - accuracy: 0.8590  
Epoch 178/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.346  
2 - accuracy: 0.8624  
Epoch 179/500  
6030/6030 [=====] - 1s 242us/sample - loss: 0.346  
0 - accuracy: 0.8600  
Epoch 180/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.345  
4 - accuracy: 0.8599  
Epoch 181/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.345  
4 - accuracy: 0.8602  
Epoch 182/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.344  
9 - accuracy: 0.8602  
Epoch 183/500

```
6030/6030 [=====] - 1s 185us/sample - loss: 0.344
9 - accuracy: 0.8597
Epoch 184/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.344
5 - accuracy: 0.8587
Epoch 185/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.344
0 - accuracy: 0.8599
Epoch 186/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.343
8 - accuracy: 0.8595
Epoch 187/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.343
6 - accuracy: 0.8619
Epoch 188/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.343
6 - accuracy: 0.8602
Epoch 189/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.343
3 - accuracy: 0.8610
Epoch 190/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.343
1 - accuracy: 0.8605
Epoch 191/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.343
5 - accuracy: 0.8619
Epoch 192/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.342
4 - accuracy: 0.8614
Epoch 193/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.342
2 - accuracy: 0.8597
Epoch 194/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.341
8 - accuracy: 0.8604
Epoch 195/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.342
2 - accuracy: 0.8614
Epoch 196/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.341
8 - accuracy: 0.8610
Epoch 197/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.342
1 - accuracy: 0.8633
Epoch 198/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.341
8 - accuracy: 0.8622
Epoch 199/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.341
3 - accuracy: 0.8607
Epoch 200/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.340
7 - accuracy: 0.8610
Epoch 201/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.341
0 - accuracy: 0.8620
Epoch 202/500
6030/6030 [=====] - 1s 238us/sample - loss: 0.340
9 - accuracy: 0.8614
Epoch 203/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.340
```

```
6 - accuracy: 0.8594
Epoch 204/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.340
6 - accuracy: 0.8614
Epoch 205/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.340
7 - accuracy: 0.8629
Epoch 206/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.340
6 - accuracy: 0.8614
Epoch 207/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.340
3 - accuracy: 0.8602
Epoch 208/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.340
6 - accuracy: 0.8595
Epoch 209/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.339
5 - accuracy: 0.8605
Epoch 210/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.340
3 - accuracy: 0.8624
Epoch 211/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.340
4 - accuracy: 0.8630
Epoch 212/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.339
7 - accuracy: 0.8619
Epoch 213/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.340
1 - accuracy: 0.8609
Epoch 214/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.340
3 - accuracy: 0.8620
Epoch 215/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.340
1 - accuracy: 0.8600
Epoch 216/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.340
2 - accuracy: 0.8624
Epoch 217/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.339
3 - accuracy: 0.8615
Epoch 218/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.338
9 - accuracy: 0.8640
Epoch 219/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.339
3 - accuracy: 0.8595
Epoch 220/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.339
5 - accuracy: 0.8607
Epoch 221/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.339
8 - accuracy: 0.8625
Epoch 222/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.339
5 - accuracy: 0.8627
Epoch 223/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.339
4 - accuracy: 0.8614
```

Epoch 224/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.338  
9 - accuracy: 0.8619  
Epoch 225/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.338  
9 - accuracy: 0.8609  
Epoch 226/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.339  
3 - accuracy: 0.8604  
Epoch 227/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.338  
3 - accuracy: 0.8612  
Epoch 228/500  
6030/6030 [=====] - 1s 218us/sample - loss: 0.338  
1 - accuracy: 0.8610  
Epoch 229/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.338  
5 - accuracy: 0.8615  
Epoch 230/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.338  
6 - accuracy: 0.8617  
Epoch 231/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.338  
4 - accuracy: 0.8638  
Epoch 232/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.338  
4 - accuracy: 0.8630  
Epoch 233/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.337  
9 - accuracy: 0.8640  
Epoch 234/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.337  
8 - accuracy: 0.8590  
Epoch 235/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.337  
9 - accuracy: 0.8632  
Epoch 236/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.337  
3 - accuracy: 0.8625  
Epoch 237/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.337  
8 - accuracy: 0.8625  
Epoch 238/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.337  
6 - accuracy: 0.8627  
Epoch 239/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.337  
8 - accuracy: 0.8632  
Epoch 240/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.337  
6 - accuracy: 0.8605  
Epoch 241/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.337  
3 - accuracy: 0.8615  
Epoch 242/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.337  
1 - accuracy: 0.8619  
Epoch 243/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.337  
6 - accuracy: 0.8627  
Epoch 244/500

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6030/6030 [=====] - 1s 190us/sample - loss: 0.336
6 - accuracy: 0.8627
Epoch 245/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.336
6 - accuracy: 0.8617
Epoch 246/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.337
1 - accuracy: 0.8625
Epoch 247/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.337
0 - accuracy: 0.8624
Epoch 248/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.336
8 - accuracy: 0.8625
Epoch 249/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.336
8 - accuracy: 0.8614
Epoch 250/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.336
4 - accuracy: 0.8617
Epoch 251/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.336
4 - accuracy: 0.8624
Epoch 252/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.336
8 - accuracy: 0.8635
Epoch 253/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.335
8 - accuracy: 0.8622
Epoch 254/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.336
2 - accuracy: 0.8624
Epoch 255/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.336
4 - accuracy: 0.8620
Epoch 256/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.336
0 - accuracy: 0.8624
Epoch 257/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.335
5 - accuracy: 0.8632
Epoch 258/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.336
1 - accuracy: 0.8640
Epoch 259/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.335
1 - accuracy: 0.8658
Epoch 260/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.335
8 - accuracy: 0.8624
Epoch 261/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.335
3 - accuracy: 0.8620
Epoch 262/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.335
7 - accuracy: 0.8635
Epoch 263/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.335
7 - accuracy: 0.8637
Epoch 264/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.335
```

```
0 - accuracy: 0.8630
Epoch 265/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.335
7 - accuracy: 0.8660
Epoch 266/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.335
3 - accuracy: 0.8662
Epoch 267/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.335
5 - accuracy: 0.8622
Epoch 268/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.334
6 - accuracy: 0.8642
Epoch 269/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.335
2 - accuracy: 0.8652
Epoch 270/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.335
0 - accuracy: 0.8642
Epoch 271/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.334
9 - accuracy: 0.8645
Epoch 272/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.335
0 - accuracy: 0.8629
Epoch 273/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.334
6 - accuracy: 0.8637
Epoch 274/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.334
9 - accuracy: 0.8652
Epoch 275/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.335
4 - accuracy: 0.8617
Epoch 276/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.334
8 - accuracy: 0.8648
Epoch 277/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.334
3 - accuracy: 0.8650
Epoch 278/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.334
8 - accuracy: 0.8647
Epoch 279/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.335
1 - accuracy: 0.8629
Epoch 280/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.334
7 - accuracy: 0.8653
Epoch 281/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.334
9 - accuracy: 0.8630
Epoch 282/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.334
9 - accuracy: 0.8629
Epoch 283/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.334
8 - accuracy: 0.8620
Epoch 284/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.334
5 - accuracy: 0.8637
```



Epoch 285/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.334  
7 - accuracy: 0.8648  
Epoch 286/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.334  
7 - accuracy: 0.8617  
Epoch 287/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.334  
5 - accuracy: 0.8648  
Epoch 288/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.333  
8 - accuracy: 0.8638  
Epoch 289/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.334  
2 - accuracy: 0.8617  
Epoch 290/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.334  
4 - accuracy: 0.8652  
Epoch 291/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.334  
6 - accuracy: 0.8630  
Epoch 292/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.334  
4 - accuracy: 0.8635  
Epoch 293/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.334  
0 - accuracy: 0.8653  
Epoch 294/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.334  
1 - accuracy: 0.8657  
Epoch 295/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.334  
2 - accuracy: 0.8663  
Epoch 296/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.334  
3 - accuracy: 0.8625  
Epoch 297/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.334  
8 - accuracy: 0.8645  
Epoch 298/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.334  
6 - accuracy: 0.8643  
Epoch 299/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.334  
4 - accuracy: 0.8645  
Epoch 300/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.333  
7 - accuracy: 0.8637  
Epoch 301/500  
6030/6030 [=====] - 1s 224us/sample - loss: 0.334  
1 - accuracy: 0.8643  
Epoch 302/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.333  
8 - accuracy: 0.8630  
Epoch 303/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.334  
3 - accuracy: 0.8642  
Epoch 304/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.334  
4 - accuracy: 0.8650  
Epoch 305/500

```
6030/6030 [=====] - 1s 179us/sample - loss: 0.334
2 - accuracy: 0.8640
Epoch 306/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.333
6 - accuracy: 0.8640
Epoch 307/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.334
1 - accuracy: 0.8660
Epoch 308/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.334
1 - accuracy: 0.8638
Epoch 309/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.334
6 - accuracy: 0.8630
Epoch 310/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.333
7 - accuracy: 0.8643
Epoch 311/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.334
1 - accuracy: 0.8653
Epoch 312/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.333
6 - accuracy: 0.8640
Epoch 313/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.333
5 - accuracy: 0.8658
Epoch 314/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.334
6 - accuracy: 0.8620
Epoch 315/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.334
7 - accuracy: 0.8647
Epoch 316/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.333
7 - accuracy: 0.8635 - loss: 0.3387 - accuracy: 0.8635
Epoch 317/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.334
2 - accuracy: 0.8638 - loss: 0.3387 - accuracy: 0.8635
Epoch 318/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.333
6 - accuracy: 0.8670
Epoch 319/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.333
6 - accuracy: 0.8629
Epoch 320/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.334
2 - accuracy: 0.8650
Epoch 321/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.334
2 - accuracy: 0.8635
Epoch 322/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.334
0 - accuracy: 0.8648
Epoch 323/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.333
6 - accuracy: 0.8645
Epoch 324/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.333
9 - accuracy: 0.8605
Epoch 325/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.333
```

```
7 - accuracy: 0.8619
Epoch 326/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.333
8 - accuracy: 0.8627
Epoch 327/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.333
6 - accuracy: 0.8632
Epoch 328/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.333
8 - accuracy: 0.8647
Epoch 329/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.332
8 - accuracy: 0.8635
Epoch 330/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.333
9 - accuracy: 0.8632
Epoch 331/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.333
2 - accuracy: 0.8637
Epoch 332/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.334
1 - accuracy: 0.8652
Epoch 333/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.333
5 - accuracy: 0.8620
Epoch 334/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.333
9 - accuracy: 0.8645
Epoch 335/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.333
5 - accuracy: 0.8648
Epoch 336/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.332
5 - accuracy: 0.8635
Epoch 337/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.333
8 - accuracy: 0.8647
Epoch 338/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.333
5 - accuracy: 0.8645
Epoch 339/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.333
8 - accuracy: 0.8627
Epoch 340/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.333
6 - accuracy: 0.8632
Epoch 341/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.331
9 - accuracy: 0.8660
Epoch 342/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.334
0 - accuracy: 0.8643
Epoch 343/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.333
0 - accuracy: 0.8662
Epoch 344/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.333
7 - accuracy: 0.8612
Epoch 345/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.333
3 - accuracy: 0.8642
```

Epoch 346/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.333  
5 - accuracy: 0.8640  
Epoch 347/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.333  
1 - accuracy: 0.8640  
Epoch 348/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.333  
0 - accuracy: 0.8658  
Epoch 349/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.333  
4 - accuracy: 0.8638  
Epoch 350/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.333  
1 - accuracy: 0.8624  
Epoch 351/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.333  
3 - accuracy: 0.8648  
Epoch 352/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.333  
0 - accuracy: 0.8619  
Epoch 353/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.333  
4 - accuracy: 0.8652  
Epoch 354/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.332  
7 - accuracy: 0.8642  
Epoch 355/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.333  
0 - accuracy: 0.8650  
Epoch 356/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.332  
6 - accuracy: 0.8635  
Epoch 357/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.332  
7 - accuracy: 0.8633  
Epoch 358/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.332  
6 - accuracy: 0.8647  
Epoch 359/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.333  
2 - accuracy: 0.8624  
Epoch 360/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.332  
5 - accuracy: 0.8632  
Epoch 361/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.332  
9 - accuracy: 0.8629  
Epoch 362/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.333  
1 - accuracy: 0.8640  
Epoch 363/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.332  
4 - accuracy: 0.8622  
Epoch 364/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.332  
7 - accuracy: 0.8650  
Epoch 365/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.332  
5 - accuracy: 0.8632  
Epoch 366/500

```
6030/6030 [=====] - 1s 187us/sample - loss: 0.333
0 - accuracy: 0.8637
Epoch 367/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.332
9 - accuracy: 0.8630
Epoch 368/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.332
9 - accuracy: 0.8650
Epoch 369/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.332
9 - accuracy: 0.8648
Epoch 370/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.331
6 - accuracy: 0.8673
Epoch 371/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.332
5 - accuracy: 0.8653
Epoch 372/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.333
0 - accuracy: 0.8622
Epoch 373/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.332
9 - accuracy: 0.8653
Epoch 374/500
6030/6030 [=====] - 2s 251us/sample - loss: 0.332
9 - accuracy: 0.8624
Epoch 375/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.331
9 - accuracy: 0.8630
Epoch 376/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.332
5 - accuracy: 0.8642
Epoch 377/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.332
3 - accuracy: 0.8653
Epoch 378/500
6030/6030 [=====] - 1s 236us/sample - loss: 0.333
0 - accuracy: 0.8645
Epoch 379/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.332
1 - accuracy: 0.8642
Epoch 380/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.332
6 - accuracy: 0.8647
Epoch 381/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.332
7 - accuracy: 0.8648
Epoch 382/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.332
5 - accuracy: 0.8643
Epoch 383/500
6030/6030 [=====] - 1s 224us/sample - loss: 0.332
4 - accuracy: 0.8640
Epoch 384/500
6030/6030 [=====] - 1s 238us/sample - loss: 0.332
8 - accuracy: 0.8635
Epoch 385/500
6030/6030 [=====] - 2s 294us/sample - loss: 0.332
5 - accuracy: 0.8635
Epoch 386/500
6030/6030 [=====] - 2s 259us/sample - loss: 0.331
```

```
9 - accuracy: 0.8629
Epoch 387/500
6030/6030 [=====] - 2s 263us/sample - loss: 0.332
1 - accuracy: 0.8612
Epoch 388/500
6030/6030 [=====] - 2s 257us/sample - loss: 0.332
4 - accuracy: 0.8658
Epoch 389/500
6030/6030 [=====] - 2s 263us/sample - loss: 0.332
5 - accuracy: 0.8642
Epoch 390/500
6030/6030 [=====] - 2s 254us/sample - loss: 0.331
9 - accuracy: 0.8648
Epoch 391/500
6030/6030 [=====] - 2s 253us/sample - loss: 0.332
7 - accuracy: 0.8625
Epoch 392/500
6030/6030 [=====] - 1s 249us/sample - loss: 0.332
9 - accuracy: 0.8630
Epoch 393/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.332
0 - accuracy: 0.8638
Epoch 394/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.332
2 - accuracy: 0.8645
Epoch 395/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.331
8 - accuracy: 0.8650
Epoch 396/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.332
4 - accuracy: 0.8642
Epoch 397/500
6030/6030 [=====] - 1s 224us/sample - loss: 0.332
8 - accuracy: 0.8627
Epoch 398/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.332
9 - accuracy: 0.8665
Epoch 399/500
6030/6030 [=====] - 1s 240us/sample - loss: 0.332
0 - accuracy: 0.8637
Epoch 400/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.332
5 - accuracy: 0.8650
Epoch 401/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.332
8 - accuracy: 0.8637
Epoch 402/500
6030/6030 [=====] - 1s 233us/sample - loss: 0.332
5 - accuracy: 0.8645
Epoch 403/500
6030/6030 [=====] - 1s 233us/sample - loss: 0.333
2 - accuracy: 0.8609
Epoch 404/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.332
0 - accuracy: 0.8640
Epoch 405/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.331
9 - accuracy: 0.8653
Epoch 406/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.332
4 - accuracy: 0.8630
```

Epoch 407/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.331  
8 - accuracy: 0.8650  
Epoch 408/500  
6030/6030 [=====] - 1s 213us/sample - loss: 0.331  
9 - accuracy: 0.8629  
Epoch 409/500  
6030/6030 [=====] - 1s 212us/sample - loss: 0.332  
4 - accuracy: 0.8640  
Epoch 410/500  
6030/6030 [=====] - 1s 215us/sample - loss: 0.332  
4 - accuracy: 0.8633  
Epoch 411/500  
6030/6030 [=====] - 1s 210us/sample - loss: 0.332  
9 - accuracy: 0.8635  
Epoch 412/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.332  
4 - accuracy: 0.8638  
Epoch 413/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.332  
7 - accuracy: 0.8632  
Epoch 414/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.332  
1 - accuracy: 0.8645  
Epoch 415/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.332  
8 - accuracy: 0.8650  
Epoch 416/500  
6030/6030 [=====] - 2s 252us/sample - loss: 0.332  
4 - accuracy: 0.8657  
Epoch 417/500  
6030/6030 [=====] - 1s 245us/sample - loss: 0.332  
8 - accuracy: 0.8667  
Epoch 418/500  
6030/6030 [=====] - 1s 211us/sample - loss: 0.331  
9 - accuracy: 0.8632  
Epoch 419/500  
6030/6030 [=====] - 1s 232us/sample - loss: 0.332  
1 - accuracy: 0.8645  
Epoch 420/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.332  
3 - accuracy: 0.8627  
Epoch 421/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.332  
7 - accuracy: 0.8638  
Epoch 422/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.332  
5 - accuracy: 0.8635  
Epoch 423/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.332  
4 - accuracy: 0.8632  
Epoch 424/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.332  
2 - accuracy: 0.8633  
Epoch 425/500  
6030/6030 [=====] - 1s 224us/sample - loss: 0.332  
6 - accuracy: 0.8632  
Epoch 426/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.331  
7 - accuracy: 0.8642  
Epoch 427/500

```
6030/6030 [=====] - 1s 224us/sample - loss: 0.331
2 - accuracy: 0.8657
Epoch 428/500
6030/6030 [=====] - 1s 231us/sample - loss: 0.332
4 - accuracy: 0.8647
Epoch 429/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.332
1 - accuracy: 0.8635
Epoch 430/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.332
1 - accuracy: 0.8665
Epoch 431/500
6030/6030 [=====] - 1s 224us/sample - loss: 0.332
0 - accuracy: 0.8637
Epoch 432/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.332
4 - accuracy: 0.8643
Epoch 433/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.332
2 - accuracy: 0.8653
Epoch 434/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.332
0 - accuracy: 0.8643
Epoch 435/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.332
3 - accuracy: 0.8642
Epoch 436/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.332
7 - accuracy: 0.8632
Epoch 437/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.332
2 - accuracy: 0.8635
Epoch 438/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.332
6 - accuracy: 0.8625
Epoch 439/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.332
3 - accuracy: 0.8633
Epoch 440/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.331
6 - accuracy: 0.8642
Epoch 441/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.331
9 - accuracy: 0.8653
Epoch 442/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.331
8 - accuracy: 0.8643
Epoch 443/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.331
6 - accuracy: 0.8645
Epoch 444/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.331
5 - accuracy: 0.8645
Epoch 445/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.331
3 - accuracy: 0.8648
Epoch 446/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.331
9 - accuracy: 0.8640
Epoch 447/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.332
```



```
0 - accuracy: 0.8640
Epoch 448/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.331
8 - accuracy: 0.8650
Epoch 449/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.331
5 - accuracy: 0.8642
Epoch 450/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.332
1 - accuracy: 0.8614
Epoch 451/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.331
8 - accuracy: 0.8630
Epoch 452/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.331
7 - accuracy: 0.8642
Epoch 453/500
6030/6030 [=====] - 1s 234us/sample - loss: 0.331
2 - accuracy: 0.8640
Epoch 454/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.331
9 - accuracy: 0.8652
Epoch 455/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.331
6 - accuracy: 0.8652
Epoch 456/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.331
8 - accuracy: 0.8632
Epoch 457/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.331
7 - accuracy: 0.8648
Epoch 458/500
6030/6030 [=====] - 1s 234us/sample - loss: 0.331
7 - accuracy: 0.8647
Epoch 459/500
6030/6030 [=====] - 1s 239us/sample - loss: 0.330
9 - accuracy: 0.8642
Epoch 460/500
6030/6030 [=====] - 2s 259us/sample - loss: 0.331
8 - accuracy: 0.8640
Epoch 461/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.331
0 - accuracy: 0.8622
Epoch 462/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.332
3 - accuracy: 0.8633
Epoch 463/500
6030/6030 [=====] - 1s 233us/sample - loss: 0.331
5 - accuracy: 0.8645
Epoch 464/500
6030/6030 [=====] - 2s 286us/sample - loss: 0.332
0 - accuracy: 0.8637
Epoch 465/500
6030/6030 [=====] - 2s 268us/sample - loss: 0.331
2 - accuracy: 0.8652
Epoch 466/500
6030/6030 [=====] - 2s 305us/sample - loss: 0.331
8 - accuracy: 0.8635
Epoch 467/500
6030/6030 [=====] - 2s 261us/sample - loss: 0.330
6 - accuracy: 0.8647
```

Epoch 468/500  
6030/6030 [=====] - 2s 349us/sample - loss: 0.331  
5 - accuracy: 0.8652  
Epoch 469/500  
6030/6030 [=====] - 1s 224us/sample - loss: 0.331  
6 - accuracy: 0.8647  
Epoch 470/500  
6030/6030 [=====] - 1s 232us/sample - loss: 0.331  
1 - accuracy: 0.8637  
Epoch 471/500  
6030/6030 [=====] - 1s 220us/sample - loss: 0.331  
0 - accuracy: 0.8624  
Epoch 472/500  
6030/6030 [=====] - 1s 215us/sample - loss: 0.331  
6 - accuracy: 0.8653  
Epoch 473/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.331  
5 - accuracy: 0.8640  
Epoch 474/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.331  
5 - accuracy: 0.8625  
Epoch 475/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.331  
6 - accuracy: 0.8640  
Epoch 476/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.331  
4 - accuracy: 0.8637  
Epoch 477/500  
6030/6030 [=====] - 1s 230us/sample - loss: 0.330  
9 - accuracy: 0.8643  
Epoch 478/500  
6030/6030 [=====] - 1s 222us/sample - loss: 0.331  
1 - accuracy: 0.8642  
Epoch 479/500  
6030/6030 [=====] - 2s 288us/sample - loss: 0.331  
1 - accuracy: 0.8633  
Epoch 480/500  
6030/6030 [=====] - 1s 240us/sample - loss: 0.330  
5 - accuracy: 0.8658  
Epoch 481/500  
6030/6030 [=====] - 2s 259us/sample - loss: 0.331  
4 - accuracy: 0.8647  
Epoch 482/500  
6030/6030 [=====] - 1s 230us/sample - loss: 0.330  
7 - accuracy: 0.8642  
Epoch 483/500  
6030/6030 [=====] - 1s 227us/sample - loss: 0.330  
9 - accuracy: 0.8673  
Epoch 484/500  
6030/6030 [=====] - 1s 225us/sample - loss: 0.329  
8 - accuracy: 0.8647  
Epoch 485/500  
6030/6030 [=====] - 1s 211us/sample - loss: 0.331  
6 - accuracy: 0.8642  
Epoch 486/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.331  
0 - accuracy: 0.8633  
Epoch 487/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.331  
4 - accuracy: 0.8643  
Epoch 488/500

```
6030/6030 [=====] - 1s 211us/sample - loss: 0.331
4 - accuracy: 0.8640
Epoch 489/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.331
2 - accuracy: 0.8650
Epoch 490/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.330
6 - accuracy: 0.8633
Epoch 491/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.331
6 - accuracy: 0.8645
Epoch 492/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.331
5 - accuracy: 0.8629
Epoch 493/500
6030/6030 [=====] - 1s 248us/sample - loss: 0.330
1 - accuracy: 0.8660
Epoch 494/500
6030/6030 [=====] - 1s 247us/sample - loss: 0.331
4 - accuracy: 0.8637
Epoch 495/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.331
0 - accuracy: 0.8663
Epoch 496/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.330
2 - accuracy: 0.8653
Epoch 497/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.330
7 - accuracy: 0.8643
Epoch 498/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.330
8 - accuracy: 0.8637 - loss: 0.322
Epoch 499/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.330
1 - accuracy: 0.8648
Epoch 500/500
6030/6030 [=====] - 2s 252us/sample - loss: 0.330
3 - accuracy: 0.8643
Train on 6030 samples
Epoch 1/500
6030/6030 [=====] - 2s 321us/sample - loss: 0.589
8 - accuracy: 0.7925
Epoch 2/500
6030/6030 [=====] - 1s 244us/sample - loss: 0.454
8 - accuracy: 0.7925
Epoch 3/500
6030/6030 [=====] - 1s 248us/sample - loss: 0.443
0 - accuracy: 0.7925
Epoch 4/500
6030/6030 [=====] - 1s 232us/sample - loss: 0.438
1 - accuracy: 0.7925
Epoch 5/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.434
7 - accuracy: 0.7925
Epoch 6/500
6030/6030 [=====] - 2s 271us/sample - loss: 0.431
1 - accuracy: 0.7925
Epoch 7/500
6030/6030 [=====] - 2s 261us/sample - loss: 0.427
5 - accuracy: 0.7940
Epoch 8/500
```

```
6030/6030 [=====] - 1s 216us/sample - loss: 0.424
6 - accuracy: 0.8207
Epoch 9/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.422
7 - accuracy: 0.8224
Epoch 10/500
6030/6030 [=====] - 1s 234us/sample - loss: 0.420
4 - accuracy: 0.8270
Epoch 11/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.418
5 - accuracy: 0.8282
Epoch 12/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.416
4 - accuracy: 0.8297
Epoch 13/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.415
3 - accuracy: 0.8313
Epoch 14/500
6030/6030 [=====] - 2s 261us/sample - loss: 0.413
7 - accuracy: 0.8295
Epoch 15/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.412
6 - accuracy: 0.8307
Epoch 16/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.411
2 - accuracy: 0.8292
Epoch 17/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.410
4 - accuracy: 0.8294
Epoch 18/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.409
4 - accuracy: 0.8295
Epoch 19/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.408
2 - accuracy: 0.8300
Epoch 20/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.407
4 - accuracy: 0.8302
Epoch 21/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.407
0 - accuracy: 0.8322
Epoch 22/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.406
3 - accuracy: 0.8294
Epoch 23/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.405
7 - accuracy: 0.8297
Epoch 24/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.405
3 - accuracy: 0.8325
Epoch 25/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.405
1 - accuracy: 0.8295
Epoch 26/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.404
6 - accuracy: 0.8310
Epoch 27/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.404
4 - accuracy: 0.8320
Epoch 28/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.404
```

```
0 - accuracy: 0.8317
Epoch 29/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.403
4 - accuracy: 0.8308
Epoch 30/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.403
3 - accuracy: 0.8328
Epoch 31/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.402
9 - accuracy: 0.8317
Epoch 32/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.402
5 - accuracy: 0.8330
Epoch 33/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.402
3 - accuracy: 0.8348
Epoch 34/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.401
6 - accuracy: 0.8335
Epoch 35/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.401
6 - accuracy: 0.8340
Epoch 36/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.401
3 - accuracy: 0.8338
Epoch 37/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.401
3 - accuracy: 0.8325
Epoch 38/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.401
0 - accuracy: 0.8350
Epoch 39/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.401
0 - accuracy: 0.8342
Epoch 40/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.400
6 - accuracy: 0.8328
Epoch 41/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.400
1 - accuracy: 0.8330
Epoch 42/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.400
6 - accuracy: 0.8347
Epoch 43/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.400
2 - accuracy: 0.8347
Epoch 44/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.400
0 - accuracy: 0.8330
Epoch 45/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.400
2 - accuracy: 0.8312
Epoch 46/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.400
0 - accuracy: 0.8327
Epoch 47/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.399
8 - accuracy: 0.8333
Epoch 48/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.399
9 - accuracy: 0.8347
```

Epoch 49/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.399  
8 - accuracy: 0.8335  
Epoch 50/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.399  
6 - accuracy: 0.8337  
Epoch 51/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.399  
7 - accuracy: 0.8342  
Epoch 52/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.399  
0 - accuracy: 0.8340  
Epoch 53/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.399  
7 - accuracy: 0.8335  
Epoch 54/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.399  
4 - accuracy: 0.8348  
Epoch 55/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.399  
1 - accuracy: 0.8368  
Epoch 56/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.399  
2 - accuracy: 0.8337  
Epoch 57/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.399  
2 - accuracy: 0.8353  
Epoch 58/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.398  
9 - accuracy: 0.8342  
Epoch 59/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.399  
2 - accuracy: 0.8332  
Epoch 60/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.399  
3 - accuracy: 0.8345  
Epoch 61/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.398  
8 - accuracy: 0.8348  
Epoch 62/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.398  
9 - accuracy: 0.8335  
Epoch 63/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.398  
4 - accuracy: 0.8347  
Epoch 64/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.398  
8 - accuracy: 0.8347  
Epoch 65/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.398  
9 - accuracy: 0.8358  
Epoch 66/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.398  
7 - accuracy: 0.8355  
Epoch 67/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.398  
9 - accuracy: 0.8332  
Epoch 68/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.398  
5 - accuracy: 0.8338  
Epoch 69/500

```
6030/6030 [=====] - 1s 192us/sample - loss: 0.398
6 - accuracy: 0.8337
Epoch 70/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.398
5 - accuracy: 0.8343
Epoch 71/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.398
6 - accuracy: 0.8337 - los
Epoch 72/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.398
1 - accuracy: 0.8337
Epoch 73/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.398
3 - accuracy: 0.8325
Epoch 74/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.398
2 - accuracy: 0.8332
Epoch 75/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.398
6 - accuracy: 0.8350
Epoch 76/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.398
5 - accuracy: 0.8345
Epoch 77/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.398
3 - accuracy: 0.8338
Epoch 78/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.398
3 - accuracy: 0.8345
Epoch 79/500
6030/6030 [=====] - ETA: 0s - loss: 0.3960 - accu
racy: 0.83 - 1s 186us/sample - loss: 0.3980 - accuracy: 0.8360
Epoch 80/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.398
0 - accuracy: 0.8332
Epoch 81/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.397
7 - accuracy: 0.8352
Epoch 82/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.398
0 - accuracy: 0.8340
Epoch 83/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.398
0 - accuracy: 0.8348
Epoch 84/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.397
9 - accuracy: 0.8343
Epoch 85/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.397
6 - accuracy: 0.8338
Epoch 86/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.397
8 - accuracy: 0.8342
Epoch 87/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.396
9 - accuracy: 0.8340
Epoch 88/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.398
1 - accuracy: 0.8340
Epoch 89/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.398
```

```
0 - accuracy: 0.8345
Epoch 90/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.398
0 - accuracy: 0.8325
Epoch 91/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.397
6 - accuracy: 0.8345
Epoch 92/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.398
1 - accuracy: 0.8348
Epoch 93/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.397
6 - accuracy: 0.8353
Epoch 94/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.397
7 - accuracy: 0.8337
Epoch 95/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.397
5 - accuracy: 0.8337
Epoch 96/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.397
6 - accuracy: 0.8345
Epoch 97/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.397
0 - accuracy: 0.8347
Epoch 98/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.397
4 - accuracy: 0.8347
Epoch 99/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.397
9 - accuracy: 0.8338
Epoch 100/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.397
3 - accuracy: 0.8345
Epoch 101/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.397
4 - accuracy: 0.8343
Epoch 102/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.397
0 - accuracy: 0.8352
Epoch 103/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.397
4 - accuracy: 0.8352
Epoch 104/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.397
7 - accuracy: 0.8337
Epoch 105/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.396
8 - accuracy: 0.8343
Epoch 106/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.397
4 - accuracy: 0.8333
Epoch 107/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.397
4 - accuracy: 0.8335 - loss: 0.3979 - accuracy:
Epoch 108/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.397
4 - accuracy: 0.8338
Epoch 109/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.397
3 - accuracy: 0.8342
```



Epoch 110/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.396  
7 - accuracy: 0.8332

Epoch 111/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.397  
2 - accuracy: 0.8343

Epoch 112/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.396  
9 - accuracy: 0.8332

Epoch 113/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.397  
0 - accuracy: 0.8340

Epoch 114/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.397  
2 - accuracy: 0.8332

Epoch 115/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.397  
2 - accuracy: 0.8338

Epoch 116/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.397  
2 - accuracy: 0.8345

Epoch 117/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.397  
3 - accuracy: 0.8347

Epoch 118/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.396  
9 - accuracy: 0.8343

Epoch 119/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.397  
1 - accuracy: 0.8343

Epoch 120/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.397  
5 - accuracy: 0.8335

Epoch 121/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.396  
4 - accuracy: 0.8340

Epoch 122/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.397  
0 - accuracy: 0.8307

Epoch 123/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.397  
1 - accuracy: 0.8328

Epoch 124/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.397  
3 - accuracy: 0.8353

Epoch 125/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.396  
7 - accuracy: 0.8332

Epoch 126/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.396  
9 - accuracy: 0.8342

Epoch 127/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.397  
2 - accuracy: 0.8358

Epoch 128/500  
6030/6030 [=====] - 1s 227us/sample - loss: 0.397  
2 - accuracy: 0.8347

Epoch 129/500  
6030/6030 [=====] - 1s 227us/sample - loss: 0.397  
1 - accuracy: 0.8347

Epoch 130/500

```
6030/6030 [=====] - 1s 203us/sample - loss: 0.397
4 - accuracy: 0.8343
Epoch 131/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.396
8 - accuracy: 0.8342
Epoch 132/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.396
8 - accuracy: 0.8357
Epoch 133/500
6030/6030 [=====] - 2s 254us/sample - loss: 0.397
1 - accuracy: 0.8343
Epoch 134/500
6030/6030 [=====] - 2s 271us/sample - loss: 0.397
1 - accuracy: 0.8343
Epoch 135/500
6030/6030 [=====] - 2s 252us/sample - loss: 0.396
6 - accuracy: 0.8337
Epoch 136/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.397
1 - accuracy: 0.8348
Epoch 137/500
6030/6030 [=====] - 2s 249us/sample - loss: 0.397
1 - accuracy: 0.8337
Epoch 138/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.396
9 - accuracy: 0.8337
Epoch 139/500
6030/6030 [=====] - 1s 246us/sample - loss: 0.397
0 - accuracy: 0.8362
Epoch 140/500
6030/6030 [=====] - 1s 246us/sample - loss: 0.396
8 - accuracy: 0.8347
Epoch 141/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.397
1 - accuracy: 0.8352
Epoch 142/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.397
1 - accuracy: 0.8330
Epoch 143/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.396
5 - accuracy: 0.8345
Epoch 144/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.397
2 - accuracy: 0.8347
Epoch 145/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.396
8 - accuracy: 0.8348
Epoch 146/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.396
6 - accuracy: 0.8333
Epoch 147/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.396
8 - accuracy: 0.8332
Epoch 148/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.397
0 - accuracy: 0.8335
Epoch 149/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.396
8 - accuracy: 0.8353
Epoch 150/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.396
```

```
5 - accuracy: 0.8340
Epoch 151/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.396
9 - accuracy: 0.8318
Epoch 152/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.396
9 - accuracy: 0.8340
Epoch 153/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.396
6 - accuracy: 0.8357
Epoch 154/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.396
9 - accuracy: 0.8340
Epoch 155/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.397
0 - accuracy: 0.8332
Epoch 156/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.396
6 - accuracy: 0.8337
Epoch 157/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.396
7 - accuracy: 0.8332
Epoch 158/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.396
5 - accuracy: 0.8335
Epoch 159/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.396
7 - accuracy: 0.8330
Epoch 160/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.396
5 - accuracy: 0.8348
Epoch 161/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.396
6 - accuracy: 0.8338
Epoch 162/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.396
9 - accuracy: 0.8332
Epoch 163/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.396
6 - accuracy: 0.8322
Epoch 164/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.396
3 - accuracy: 0.8343
Epoch 165/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.396
8 - accuracy: 0.8335
Epoch 166/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
2 - accuracy: 0.8335
Epoch 167/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.396
6 - accuracy: 0.8355
Epoch 168/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.396
4 - accuracy: 0.8352
Epoch 169/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
6 - accuracy: 0.8332
Epoch 170/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.396
7 - accuracy: 0.8328
```

Epoch 171/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.396  
6 - accuracy: 0.8347  
Epoch 172/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.396  
8 - accuracy: 0.8343  
Epoch 173/500  
6030/6030 [=====] - 1s 231us/sample - loss: 0.396  
7 - accuracy: 0.8327  
Epoch 174/500  
6030/6030 [=====] - 1s 211us/sample - loss: 0.396  
5 - accuracy: 0.8330  
Epoch 175/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.396  
7 - accuracy: 0.8342  
Epoch 176/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.396  
4 - accuracy: 0.8325  
Epoch 177/500  
6030/6030 [=====] - 1s 231us/sample - loss: 0.396  
8 - accuracy: 0.8328  
Epoch 178/500  
6030/6030 [=====] - 1s 218us/sample - loss: 0.396  
6 - accuracy: 0.8340  
Epoch 179/500  
6030/6030 [=====] - 1s 213us/sample - loss: 0.396  
8 - accuracy: 0.8325  
Epoch 180/500  
6030/6030 [=====] - 1s 211us/sample - loss: 0.396  
5 - accuracy: 0.8335  
Epoch 181/500  
6030/6030 [=====] - 1s 222us/sample - loss: 0.396  
9 - accuracy: 0.8333  
Epoch 182/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.396  
7 - accuracy: 0.8318  
Epoch 183/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.396  
4 - accuracy: 0.8350  
Epoch 184/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.396  
8 - accuracy: 0.8327  
Epoch 185/500  
6030/6030 [=====] - 1s 210us/sample - loss: 0.396  
8 - accuracy: 0.8323  
Epoch 186/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.396  
1 - accuracy: 0.8338  
Epoch 187/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.397  
0 - accuracy: 0.8320  
Epoch 188/500  
6030/6030 [=====] - 1s 214us/sample - loss: 0.396  
7 - accuracy: 0.8328  
Epoch 189/500  
6030/6030 [=====] - 1s 219us/sample - loss: 0.396  
8 - accuracy: 0.8333  
Epoch 190/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.396  
6 - accuracy: 0.8332  
Epoch 191/500

```
6030/6030 [=====] - 1s 209us/sample - loss: 0.396
1 - accuracy: 0.8337
Epoch 192/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.396
4 - accuracy: 0.8343
Epoch 193/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.396
8 - accuracy: 0.8332
Epoch 194/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.396
9 - accuracy: 0.8323
Epoch 195/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.396
3 - accuracy: 0.8328
Epoch 196/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
7 - accuracy: 0.8323
Epoch 197/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
4 - accuracy: 0.8328
Epoch 198/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.396
7 - accuracy: 0.8338
Epoch 199/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.396
5 - accuracy: 0.8343
Epoch 200/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
3 - accuracy: 0.8330
Epoch 201/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
5 - accuracy: 0.8337
Epoch 202/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.396
6 - accuracy: 0.8327
Epoch 203/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.396
6 - accuracy: 0.8322
Epoch 204/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.396
7 - accuracy: 0.8335
Epoch 205/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.396
6 - accuracy: 0.8342
Epoch 206/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.396
3 - accuracy: 0.8330
Epoch 207/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.396
7 - accuracy: 0.8347
Epoch 208/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.396
4 - accuracy: 0.8318
Epoch 209/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.396
4 - accuracy: 0.8323
Epoch 210/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.396
7 - accuracy: 0.8327
Epoch 211/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.396
```

```
3 - accuracy: 0.8327
Epoch 212/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.396
4 - accuracy: 0.8338
Epoch 213/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.396
5 - accuracy: 0.8333
Epoch 214/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.396
4 - accuracy: 0.8342
Epoch 215/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.396
7 - accuracy: 0.8325
Epoch 216/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.395
9 - accuracy: 0.8333
Epoch 217/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.396
9 - accuracy: 0.8335
Epoch 218/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.396
2 - accuracy: 0.8340
Epoch 219/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.396
3 - accuracy: 0.8322
Epoch 220/500
6030/6030 [=====] - 1s 240us/sample - loss: 0.396
2 - accuracy: 0.8322
Epoch 221/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.396
3 - accuracy: 0.8350
Epoch 222/500
6030/6030 [=====] - ETA: 0s - loss: 0.3939 - accuracy: 0.83 - 1s 209us/sample - loss: 0.3961 - accuracy: 0.8333
Epoch 223/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.395
8 - accuracy: 0.8335
Epoch 224/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.396
3 - accuracy: 0.8330
Epoch 225/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.396
2 - accuracy: 0.8330
Epoch 226/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.396
2 - accuracy: 0.8338
Epoch 227/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.396
0 - accuracy: 0.8337
Epoch 228/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.396
5 - accuracy: 0.8325
Epoch 229/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.396
2 - accuracy: 0.8342
Epoch 230/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.396
6 - accuracy: 0.8332
Epoch 231/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.395
8 - accuracy: 0.8340
```

Epoch 232/500  
6030/6030 [=====] - 1s 210us/sample - loss: 0.396  
4 - accuracy: 0.8337  
Epoch 233/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.395  
9 - accuracy: 0.8333  
Epoch 234/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.396  
0 - accuracy: 0.8335  
Epoch 235/500  
6030/6030 [=====] - 1s 213us/sample - loss: 0.396  
0 - accuracy: 0.8342  
Epoch 236/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.396  
1 - accuracy: 0.8328  
Epoch 237/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.396  
0 - accuracy: 0.8338  
Epoch 238/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.395  
9 - accuracy: 0.8340  
Epoch 239/500  
6030/6030 [=====] - 1s 212us/sample - loss: 0.396  
3 - accuracy: 0.8330  
Epoch 240/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.396  
1 - accuracy: 0.8335  
Epoch 241/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.395  
5 - accuracy: 0.8338  
Epoch 242/500  
6030/6030 [=====] - 1s 210us/sample - loss: 0.396  
3 - accuracy: 0.8333  
Epoch 243/500  
6030/6030 [=====] - 1s 207us/sample - loss: 0.395  
9 - accuracy: 0.8345  
Epoch 244/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.395  
8 - accuracy: 0.8337  
Epoch 245/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.395  
9 - accuracy: 0.8325  
Epoch 246/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.395  
8 - accuracy: 0.8328  
Epoch 247/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.396  
0 - accuracy: 0.8342  
Epoch 248/500  
6030/6030 [=====] - 1s 214us/sample - loss: 0.395  
8 - accuracy: 0.8323  
Epoch 249/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.395  
8 - accuracy: 0.8332  
Epoch 250/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.395  
7 - accuracy: 0.8338  
Epoch 251/500  
6030/6030 [=====] - 1s 219us/sample - loss: 0.396  
0 - accuracy: 0.8338  
Epoch 252/500

```
6030/6030 [=====] - 1s 216us/sample - loss: 0.395
9 - accuracy: 0.8328
Epoch 253/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.396
0 - accuracy: 0.8332
Epoch 254/500
6030/6030 [=====] - 1s 232us/sample - loss: 0.395
7 - accuracy: 0.8343
Epoch 255/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.395
7 - accuracy: 0.8350
Epoch 256/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.395
6 - accuracy: 0.8340
Epoch 257/500
6030/6030 [=====] - 2s 263us/sample - loss: 0.395
6 - accuracy: 0.8318
Epoch 258/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.395
6 - accuracy: 0.8327
Epoch 259/500
6030/6030 [=====] - 1s 240us/sample - loss: 0.395
7 - accuracy: 0.8312
Epoch 260/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.395
8 - accuracy: 0.8328
Epoch 261/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.395
7 - accuracy: 0.8335
Epoch 262/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.395
6 - accuracy: 0.8338
Epoch 263/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.395
8 - accuracy: 0.8342
Epoch 264/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.395
9 - accuracy: 0.8328
Epoch 265/500
6030/6030 [=====] - 2s 264us/sample - loss: 0.395
8 - accuracy: 0.8338
Epoch 266/500
6030/6030 [=====] - 2s 261us/sample - loss: 0.395
2 - accuracy: 0.8352
Epoch 267/500
6030/6030 [=====] - 2s 249us/sample - loss: 0.395
8 - accuracy: 0.8347
Epoch 268/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.395
2 - accuracy: 0.8347
Epoch 269/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.395
4 - accuracy: 0.8342
Epoch 270/500
6030/6030 [=====] - 1s 234us/sample - loss: 0.395
4 - accuracy: 0.8348
Epoch 271/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.394
5 - accuracy: 0.8352
Epoch 272/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.395
```



```
5 - accuracy: 0.8343
Epoch 273/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.395
6 - accuracy: 0.8335
Epoch 274/500
6030/6030 [=====] - 1s 243us/sample - loss: 0.395
2 - accuracy: 0.8340
Epoch 275/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.395
5 - accuracy: 0.8330
Epoch 276/500
6030/6030 [=====] - 1s 232us/sample - loss: 0.395
4 - accuracy: 0.8338
Epoch 277/500
6030/6030 [=====] - 1s 244us/sample - loss: 0.395
5 - accuracy: 0.8332
Epoch 278/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.395
5 - accuracy: 0.8338
Epoch 279/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.395
4 - accuracy: 0.8340
Epoch 280/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.395
1 - accuracy: 0.8338
Epoch 281/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.395
7 - accuracy: 0.8337
Epoch 282/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.395
6 - accuracy: 0.8333
Epoch 283/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.395
7 - accuracy: 0.8343
Epoch 284/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.395
5 - accuracy: 0.8345
Epoch 285/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.395
1 - accuracy: 0.8337
Epoch 286/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.395
5 - accuracy: 0.8337
Epoch 287/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.395
1 - accuracy: 0.8337
Epoch 288/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.395
3 - accuracy: 0.8338
Epoch 289/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.395
3 - accuracy: 0.8335
Epoch 290/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.395
6 - accuracy: 0.8337
Epoch 291/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.395
1 - accuracy: 0.8333
Epoch 292/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.395
2 - accuracy: 0.8338
```

Epoch 293/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.395  
3 - accuracy: 0.8337  
Epoch 294/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.395  
3 - accuracy: 0.8330  
Epoch 295/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.395  
3 - accuracy: 0.8327  
Epoch 296/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.395  
6 - accuracy: 0.8342  
Epoch 297/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.395  
2 - accuracy: 0.8332  
Epoch 298/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.395  
6 - accuracy: 0.8330  
Epoch 299/500  
6030/6030 [=====] - 1s 217us/sample - loss: 0.394  
5 - accuracy: 0.8347  
Epoch 300/500  
6030/6030 [=====] - 1s 225us/sample - loss: 0.395  
2 - accuracy: 0.8345  
Epoch 301/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.395  
1 - accuracy: 0.8327  
Epoch 302/500  
6030/6030 [=====] - 2s 280us/sample - loss: 0.396  
0 - accuracy: 0.8327  
Epoch 303/500  
6030/6030 [=====] - 1s 232us/sample - loss: 0.395  
2 - accuracy: 0.8338  
Epoch 304/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.395  
1 - accuracy: 0.8340  
Epoch 305/500  
6030/6030 [=====] - 1s 212us/sample - loss: 0.395  
2 - accuracy: 0.8355  
Epoch 306/500  
6030/6030 [=====] - 1s 231us/sample - loss: 0.395  
2 - accuracy: 0.8330  
Epoch 307/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.395  
5 - accuracy: 0.8332  
Epoch 308/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.395  
5 - accuracy: 0.8333  
Epoch 309/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.395  
0 - accuracy: 0.8345  
Epoch 310/500  
6030/6030 [=====] - 1s 223us/sample - loss: 0.395  
0 - accuracy: 0.8342  
Epoch 311/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.395  
3 - accuracy: 0.8342  
Epoch 312/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.395  
5 - accuracy: 0.8345  
Epoch 313/500

```
6030/6030 [=====] - 1s 197us/sample - loss: 0.394
7 - accuracy: 0.8348
Epoch 314/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.394
9 - accuracy: 0.8337
Epoch 315/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.395
5 - accuracy: 0.8347
Epoch 316/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.395
3 - accuracy: 0.8332
Epoch 317/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.395
3 - accuracy: 0.8332
Epoch 318/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.395
1 - accuracy: 0.8340
Epoch 319/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.394
9 - accuracy: 0.8323
Epoch 320/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.395
5 - accuracy: 0.8333
Epoch 321/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.395
3 - accuracy: 0.8322
Epoch 322/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.395
0 - accuracy: 0.8325
Epoch 323/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.395
1 - accuracy: 0.8335
Epoch 324/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.395
0 - accuracy: 0.8338
Epoch 325/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
9 - accuracy: 0.8338
Epoch 326/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.394
9 - accuracy: 0.8335
Epoch 327/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.395
2 - accuracy: 0.8333
Epoch 328/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.395
1 - accuracy: 0.8342
Epoch 329/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.394
7 - accuracy: 0.8330
Epoch 330/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.395
2 - accuracy: 0.8335
Epoch 331/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
4 - accuracy: 0.8330
Epoch 332/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.395
1 - accuracy: 0.8350
Epoch 333/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.395
```

```
0 - accuracy: 0.8323
Epoch 334/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.394
9 - accuracy: 0.8343
Epoch 335/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.394
8 - accuracy: 0.8342
Epoch 336/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.394
8 - accuracy: 0.8332
Epoch 337/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.395
2 - accuracy: 0.8325
Epoch 338/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.395
1 - accuracy: 0.8348
Epoch 339/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.394
7 - accuracy: 0.8345
Epoch 340/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.394
7 - accuracy: 0.8327
Epoch 341/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.394
5 - accuracy: 0.8327
Epoch 342/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.394
5 - accuracy: 0.8328
Epoch 343/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.395
0 - accuracy: 0.8338
Epoch 344/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.394
5 - accuracy: 0.8353
Epoch 345/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.394
8 - accuracy: 0.8342
Epoch 346/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.394
6 - accuracy: 0.8330
Epoch 347/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.395
0 - accuracy: 0.8340
Epoch 348/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.394
4 - accuracy: 0.8345 - loss: 0.3823 -
Epoch 349/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.394
5 - accuracy: 0.8312
Epoch 350/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.394
5 - accuracy: 0.8345
Epoch 351/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.394
9 - accuracy: 0.8337
Epoch 352/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.394
6 - accuracy: 0.8338
Epoch 353/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.394
9 - accuracy: 0.8325
```

Epoch 354/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.394  
6 - accuracy: 0.8352  
Epoch 355/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.394  
9 - accuracy: 0.8337  
Epoch 356/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.394  
9 - accuracy: 0.8352  
Epoch 357/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.394  
5 - accuracy: 0.8342  
Epoch 358/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.394  
8 - accuracy: 0.8348  
Epoch 359/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.394  
8 - accuracy: 0.8328  
Epoch 360/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.394  
8 - accuracy: 0.8338  
Epoch 361/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.394  
7 - accuracy: 0.8345  
Epoch 362/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.394  
1 - accuracy: 0.8343  
Epoch 363/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.394  
3 - accuracy: 0.8347  
Epoch 364/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.394  
6 - accuracy: 0.8365  
Epoch 365/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.394  
6 - accuracy: 0.8353  
Epoch 366/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.394  
7 - accuracy: 0.8335  
Epoch 367/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.394  
9 - accuracy: 0.8350  
Epoch 368/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.394  
1 - accuracy: 0.8333  
Epoch 369/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.395  
0 - accuracy: 0.8347  
Epoch 370/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.394  
2 - accuracy: 0.8362  
Epoch 371/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.394  
4 - accuracy: 0.8348  
Epoch 372/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.394  
5 - accuracy: 0.8353  
Epoch 373/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.394  
6 - accuracy: 0.8347  
Epoch 374/500

```
6030/6030 [=====] - 1s 187us/sample - loss: 0.394
9 - accuracy: 0.8332
Epoch 375/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.394
7 - accuracy: 0.8343
Epoch 376/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.395
0 - accuracy: 0.8340
Epoch 377/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.394
6 - accuracy: 0.8325
Epoch 378/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.394
7 - accuracy: 0.8337
Epoch 379/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.394
5 - accuracy: 0.8342
Epoch 380/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.394
6 - accuracy: 0.8345
Epoch 381/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.394
6 - accuracy: 0.8357
Epoch 382/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.394
6 - accuracy: 0.8343
Epoch 383/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.394
3 - accuracy: 0.8345
Epoch 384/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.394
5 - accuracy: 0.8347
Epoch 385/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.393
7 - accuracy: 0.8337
Epoch 386/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.394
7 - accuracy: 0.8348 - loss: 0.3941 - accuracy: 0.83
Epoch 387/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.394
3 - accuracy: 0.8340
Epoch 388/500
6030/6030 [=====] - 2s 252us/sample - loss: 0.394
6 - accuracy: 0.8342
Epoch 389/500
6030/6030 [=====] - 2s 255us/sample - loss: 0.394
3 - accuracy: 0.8353
Epoch 390/500
6030/6030 [=====] - 1s 247us/sample - loss: 0.394
7 - accuracy: 0.8343
Epoch 391/500
6030/6030 [=====] - 1s 247us/sample - loss: 0.394
3 - accuracy: 0.8360
Epoch 392/500
6030/6030 [=====] - 1s 248us/sample - loss: 0.394
3 - accuracy: 0.8348
Epoch 393/500
6030/6030 [=====] - 2s 256us/sample - loss: 0.394
7 - accuracy: 0.8338
Epoch 394/500
6030/6030 [=====] - 1s 239us/sample - loss: 0.394
```

```
8 - accuracy: 0.8335
Epoch 395/500
6030/6030 [=====] - 2s 251us/sample - loss: 0.394
1 - accuracy: 0.8338
Epoch 396/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.394
7 - accuracy: 0.8357
Epoch 397/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.394
7 - accuracy: 0.8327
Epoch 398/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.394
7 - accuracy: 0.8332
Epoch 399/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.394
2 - accuracy: 0.8358
Epoch 400/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.395
0 - accuracy: 0.8337
Epoch 401/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.394
2 - accuracy: 0.8352
Epoch 402/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.394
5 - accuracy: 0.8342
Epoch 403/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.394
6 - accuracy: 0.8353
Epoch 404/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.394
7 - accuracy: 0.8342
Epoch 405/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
5 - accuracy: 0.8342
Epoch 406/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.394
0 - accuracy: 0.8347
Epoch 407/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
5 - accuracy: 0.8347
Epoch 408/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.393
7 - accuracy: 0.8323
Epoch 409/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.394
4 - accuracy: 0.8327
Epoch 410/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.394
7 - accuracy: 0.8340
Epoch 411/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.394
2 - accuracy: 0.8333
Epoch 412/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.393
9 - accuracy: 0.8317
Epoch 413/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.394
5 - accuracy: 0.8328 - loss: 0
Epoch 414/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.394
7 - accuracy: 0.8352
```

Epoch 415/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.394  
8 - accuracy: 0.8338  
Epoch 416/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.394  
4 - accuracy: 0.8343  
Epoch 417/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.394  
8 - accuracy: 0.8330  
Epoch 418/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.394  
6 - accuracy: 0.8333  
Epoch 419/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.394  
9 - accuracy: 0.8322  
Epoch 420/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.394  
3 - accuracy: 0.8340  
Epoch 421/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.394  
9 - accuracy: 0.8342  
Epoch 422/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.394  
2 - accuracy: 0.8345  
Epoch 423/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.394  
5 - accuracy: 0.8338  
Epoch 424/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.394  
5 - accuracy: 0.8342  
Epoch 425/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.394  
1 - accuracy: 0.8350  
Epoch 426/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.394  
8 - accuracy: 0.8325  
Epoch 427/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.394  
4 - accuracy: 0.8337  
Epoch 428/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.394  
5 - accuracy: 0.8352  
Epoch 429/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.394  
9 - accuracy: 0.8360  
Epoch 430/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.394  
7 - accuracy: 0.8365  
Epoch 431/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.394  
3 - accuracy: 0.8350  
Epoch 432/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.394  
6 - accuracy: 0.8337  
Epoch 433/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.394  
2 - accuracy: 0.8328  
Epoch 434/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.394  
5 - accuracy: 0.8347  
Epoch 435/500



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6030/6030 [=====] - 1s 187us/sample - loss: 0.394
5 - accuracy: 0.8342
Epoch 436/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.394
3 - accuracy: 0.8342 -
Epoch 437/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.394
2 - accuracy: 0.8315
Epoch 438/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.394
3 - accuracy: 0.8340
Epoch 439/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.394
4 - accuracy: 0.8338
Epoch 440/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.393
9 - accuracy: 0.8335
Epoch 441/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.394
3 - accuracy: 0.8347
Epoch 442/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.394
1 - accuracy: 0.8337
Epoch 443/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
5 - accuracy: 0.8337
Epoch 444/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.394
9 - accuracy: 0.8338
Epoch 445/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.394
0 - accuracy: 0.8348
Epoch 446/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.394
6 - accuracy: 0.8333
Epoch 447/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.394
6 - accuracy: 0.8347
Epoch 448/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.394
1 - accuracy: 0.8337
Epoch 449/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
5 - accuracy: 0.8340
Epoch 450/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.394
8 - accuracy: 0.8333
Epoch 451/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.394
8 - accuracy: 0.8330
Epoch 452/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.394
4 - accuracy: 0.8350
Epoch 453/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
4 - accuracy: 0.8332
Epoch 454/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
5 - accuracy: 0.8343
Epoch 455/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.394
```

```
4 - accuracy: 0.8347
Epoch 456/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.394
5 - accuracy: 0.8322
Epoch 457/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.394
5 - accuracy: 0.8338
Epoch 458/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.394
4 - accuracy: 0.8333
Epoch 459/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.394
9 - accuracy: 0.8345
Epoch 460/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.394
3 - accuracy: 0.8347
Epoch 461/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.394
8 - accuracy: 0.8338
Epoch 462/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.394
1 - accuracy: 0.8335
Epoch 463/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
7 - accuracy: 0.8353
Epoch 464/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.394
3 - accuracy: 0.8328
Epoch 465/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.394
4 - accuracy: 0.8333 - loss: 0.3913 - accuracy:
Epoch 466/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.394
4 - accuracy: 0.8348
Epoch 467/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
0 - accuracy: 0.8360
Epoch 468/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.394
5 - accuracy: 0.8325
Epoch 469/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.394
0 - accuracy: 0.8338
Epoch 470/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.394
7 - accuracy: 0.8342
Epoch 471/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.394
2 - accuracy: 0.8347
Epoch 472/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.394
5 - accuracy: 0.8335
Epoch 473/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.394
5 - accuracy: 0.8335
Epoch 474/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.393
8 - accuracy: 0.8342
Epoch 475/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.394
7 - accuracy: 0.8340
```

Epoch 476/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.394  
4 - accuracy: 0.8353  
Epoch 477/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.394  
8 - accuracy: 0.8340  
Epoch 478/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.394  
2 - accuracy: 0.8340  
Epoch 479/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.394  
5 - accuracy: 0.8350  
Epoch 480/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.394  
6 - accuracy: 0.8347  
Epoch 481/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.394  
5 - accuracy: 0.8340  
Epoch 482/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.394  
8 - accuracy: 0.8322  
Epoch 483/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.394  
3 - accuracy: 0.8345  
Epoch 484/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.394  
5 - accuracy: 0.8347  
Epoch 485/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.394  
0 - accuracy: 0.8332  
Epoch 486/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.394  
4 - accuracy: 0.8340  
Epoch 487/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.393  
5 - accuracy: 0.8342  
Epoch 488/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.394  
5 - accuracy: 0.8345  
Epoch 489/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.394  
6 - accuracy: 0.8332  
Epoch 490/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.394  
4 - accuracy: 0.8337  
Epoch 491/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.394  
6 - accuracy: 0.8325  
Epoch 492/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.394  
4 - accuracy: 0.8347  
Epoch 493/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.393  
9 - accuracy: 0.8345  
Epoch 494/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.394  
5 - accuracy: 0.8342  
Epoch 495/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.394  
8 - accuracy: 0.8335  
Epoch 496/500

```
6030/6030 [=====] - 1s 186us/sample - loss: 0.394
8 - accuracy: 0.8343
Epoch 497/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.394
4 - accuracy: 0.8352
Epoch 498/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
3 - accuracy: 0.8345
Epoch 499/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.394
4 - accuracy: 0.8340
Epoch 500/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.394
1 - accuracy: 0.8342
Train on 6030 samples
Epoch 1/500
6030/6030 [=====] - 2s 278us/sample - loss: 0.638
1 - accuracy: 0.7869
Epoch 2/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.504
4 - accuracy: 0.7877
Epoch 3/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.456
3 - accuracy: 0.7877
Epoch 4/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.447
6 - accuracy: 0.7877
Epoch 5/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.442
9 - accuracy: 0.7877
Epoch 6/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.439
6 - accuracy: 0.7877
Epoch 7/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.436
6 - accuracy: 0.7877
Epoch 8/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.433
8 - accuracy: 0.7884
Epoch 9/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.430
9 - accuracy: 0.8176
Epoch 10/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.428
0 - accuracy: 0.8237
Epoch 11/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.425
5 - accuracy: 0.8257
Epoch 12/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.422
8 - accuracy: 0.8269
Epoch 13/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.420
4 - accuracy: 0.8269
Epoch 14/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.418
5 - accuracy: 0.8287
Epoch 15/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.416
6 - accuracy: 0.8297
Epoch 16/500
```

```
6030/6030 [=====] - 1s 186us/sample - loss: 0.414
9 - accuracy: 0.8310
Epoch 17/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.413
6 - accuracy: 0.8295
Epoch 18/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.412
6 - accuracy: 0.8300
Epoch 19/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.411
5 - accuracy: 0.8302
Epoch 20/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.410
7 - accuracy: 0.8302
Epoch 21/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.409
9 - accuracy: 0.8305
Epoch 22/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.409
1 - accuracy: 0.8295
Epoch 23/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.408
5 - accuracy: 0.8317
Epoch 24/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.407
9 - accuracy: 0.8302
Epoch 25/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.407
5 - accuracy: 0.8320
Epoch 26/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.406
8 - accuracy: 0.8305
Epoch 27/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.406
5 - accuracy: 0.8310
Epoch 28/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.406
1 - accuracy: 0.8307
Epoch 29/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.405
5 - accuracy: 0.8320
Epoch 30/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.405
4 - accuracy: 0.8310
Epoch 31/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.404
9 - accuracy: 0.8332
Epoch 32/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.404
6 - accuracy: 0.8325
Epoch 33/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.404
5 - accuracy: 0.8328
Epoch 34/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.404
1 - accuracy: 0.8333
Epoch 35/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.404
1 - accuracy: 0.8325 - loss: 0.4053 - accuracy: 0.
Epoch 36/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.403
```

```
8 - accuracy: 0.8342
Epoch 37/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.403
4 - accuracy: 0.8340 - loss: 0.4129 -
Epoch 38/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.403
1 - accuracy: 0.8350
Epoch 39/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.402
8 - accuracy: 0.8340
Epoch 40/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.402
6 - accuracy: 0.8340
Epoch 41/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.402
4 - accuracy: 0.8335
Epoch 42/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.401
7 - accuracy: 0.8353
Epoch 43/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.401
5 - accuracy: 0.8352
Epoch 44/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.401
1 - accuracy: 0.8360
Epoch 45/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.400
9 - accuracy: 0.8345
Epoch 46/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.400
4 - accuracy: 0.8345
Epoch 47/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.399
9 - accuracy: 0.8388
Epoch 48/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.399
4 - accuracy: 0.8355
Epoch 49/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.399
2 - accuracy: 0.8363
Epoch 50/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.398
8 - accuracy: 0.8358
Epoch 51/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.398
4 - accuracy: 0.8367
Epoch 52/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.397
6 - accuracy: 0.8373
Epoch 53/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.397
3 - accuracy: 0.8371
Epoch 54/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.396
6 - accuracy: 0.8378
Epoch 55/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.396
3 - accuracy: 0.8371
Epoch 56/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.395
3 - accuracy: 0.8391
```

Epoch 57/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.394  
6 - accuracy: 0.8373  
Epoch 58/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.393  
5 - accuracy: 0.8380  
Epoch 59/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.392  
4 - accuracy: 0.8358  
Epoch 60/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.390  
9 - accuracy: 0.8373  
Epoch 61/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.389  
2 - accuracy: 0.8363  
Epoch 62/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.387  
2 - accuracy: 0.8370  
Epoch 63/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.384  
4 - accuracy: 0.8390  
Epoch 64/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.381  
5 - accuracy: 0.8380  
Epoch 65/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.378  
2 - accuracy: 0.8418  
Epoch 66/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.374  
2 - accuracy: 0.8461  
Epoch 67/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.370  
1 - accuracy: 0.8486  
Epoch 68/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.365  
0 - accuracy: 0.8494  
Epoch 69/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.360  
8 - accuracy: 0.8537  
Epoch 70/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.358  
2 - accuracy: 0.8539  
Epoch 71/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.355  
5 - accuracy: 0.8554  
Epoch 72/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.355  
0 - accuracy: 0.8544  
Epoch 73/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.353  
1 - accuracy: 0.8569  
Epoch 74/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.352  
7 - accuracy: 0.8556  
Epoch 75/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.352  
2 - accuracy: 0.8575  
Epoch 76/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.352  
2 - accuracy: 0.8590  
Epoch 77/500

```
6030/6030 [=====] - 1s 192us/sample - loss: 0.351
0 - accuracy: 0.8564
Epoch 78/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.351
4 - accuracy: 0.8567
Epoch 79/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.350
6 - accuracy: 0.8580
Epoch 80/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.350
6 - accuracy: 0.8574
Epoch 81/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.350
2 - accuracy: 0.8572
Epoch 82/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.350
0 - accuracy: 0.8544
Epoch 83/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.349
8 - accuracy: 0.8552
Epoch 84/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.349
6 - accuracy: 0.8559
Epoch 85/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.349
8 - accuracy: 0.8566
Epoch 86/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.349
2 - accuracy: 0.8569
Epoch 87/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.348
8 - accuracy: 0.8580
Epoch 88/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.348
3 - accuracy: 0.8584
Epoch 89/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.348
2 - accuracy: 0.8570
Epoch 90/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.348
1 - accuracy: 0.8580
Epoch 91/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.347
7 - accuracy: 0.8575
Epoch 92/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.347
6 - accuracy: 0.8567
Epoch 93/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.347
3 - accuracy: 0.8575
Epoch 94/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.347
2 - accuracy: 0.8562
Epoch 95/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.347
3 - accuracy: 0.8562
Epoch 96/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.346
8 - accuracy: 0.8561
Epoch 97/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.347
```



```
1 - accuracy: 0.8552
Epoch 98/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.347
0 - accuracy: 0.8561
Epoch 99/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.346
7 - accuracy: 0.8549
Epoch 100/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.346
3 - accuracy: 0.8582
Epoch 101/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.346
3 - accuracy: 0.8592
Epoch 102/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.346
2 - accuracy: 0.8561
Epoch 103/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.346
1 - accuracy: 0.8547
Epoch 104/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.346
2 - accuracy: 0.8570
Epoch 105/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.346
0 - accuracy: 0.8564
Epoch 106/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.346
1 - accuracy: 0.8585
Epoch 107/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.345
8 - accuracy: 0.8564
Epoch 108/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.346
0 - accuracy: 0.8572
Epoch 109/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.345
8 - accuracy: 0.8566
Epoch 110/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.345
9 - accuracy: 0.8564
Epoch 111/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.346
2 - accuracy: 0.8566
Epoch 112/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.345
7 - accuracy: 0.8551
Epoch 113/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.345
4 - accuracy: 0.8569
Epoch 114/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.346
1 - accuracy: 0.8562
Epoch 115/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.345
6 - accuracy: 0.8579
Epoch 116/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.345
8 - accuracy: 0.8549
Epoch 117/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.345
6 - accuracy: 0.8570
```

Epoch 118/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.345  
7 - accuracy: 0.8572  
Epoch 119/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.345  
5 - accuracy: 0.8562  
Epoch 120/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.345  
3 - accuracy: 0.8585  
Epoch 121/500  
6030/6030 [=====] - 1s 214us/sample - loss: 0.345  
6 - accuracy: 0.8570  
Epoch 122/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.345  
0 - accuracy: 0.8572  
Epoch 123/500  
6030/6030 [=====] - 1s 222us/sample - loss: 0.345  
3 - accuracy: 0.8589  
Epoch 124/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.345  
1 - accuracy: 0.8585  
Epoch 125/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.345  
1 - accuracy: 0.8554  
Epoch 126/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.345  
1 - accuracy: 0.8574  
Epoch 127/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.344  
8 - accuracy: 0.8580  
Epoch 128/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.345  
1 - accuracy: 0.8577  
Epoch 129/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.344  
4 - accuracy: 0.8579  
Epoch 130/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.344  
7 - accuracy: 0.8612  
Epoch 131/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.344  
7 - accuracy: 0.8580  
Epoch 132/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.344  
3 - accuracy: 0.8594  
Epoch 133/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.344  
5 - accuracy: 0.8574  
Epoch 134/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.343  
6 - accuracy: 0.8607  
Epoch 135/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.344  
3 - accuracy: 0.8589  
Epoch 136/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.344  
1 - accuracy: 0.8567  
Epoch 137/500  
6030/6030 [=====] - 1s 233us/sample - loss: 0.344  
5 - accuracy: 0.8585  
Epoch 138/500

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6030/6030 [=====] - 1s 198us/sample - loss: 0.344
0 - accuracy: 0.8599
Epoch 139/500
6030/6030 [=====] - 2s 278us/sample - loss: 0.344
4 - accuracy: 0.8599
Epoch 140/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.344
1 - accuracy: 0.8584
Epoch 141/500
6030/6030 [=====] - 2s 253us/sample - loss: 0.343
8 - accuracy: 0.8582
Epoch 142/500
6030/6030 [=====] - 2s 259us/sample - loss: 0.343
7 - accuracy: 0.8602
Epoch 143/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.343
7 - accuracy: 0.8590
Epoch 144/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.343
5 - accuracy: 0.8597
Epoch 145/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.343
5 - accuracy: 0.8577
Epoch 146/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.343
4 - accuracy: 0.8599
Epoch 147/500
6030/6030 [=====] - 2s 255us/sample - loss: 0.342
5 - accuracy: 0.8589
Epoch 148/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.343
0 - accuracy: 0.8595
Epoch 149/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.342
9 - accuracy: 0.8572
Epoch 150/500
6030/6030 [=====] - 2s 311us/sample - loss: 0.343
0 - accuracy: 0.8594
Epoch 151/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.343
2 - accuracy: 0.8574
Epoch 152/500
6030/6030 [=====] - 2s 273us/sample - loss: 0.343
0 - accuracy: 0.8589
Epoch 153/500
6030/6030 [=====] - 2s 271us/sample - loss: 0.342
8 - accuracy: 0.8602
Epoch 154/500
6030/6030 [=====] - 3s 418us/sample - loss: 0.342
7 - accuracy: 0.8587
Epoch 155/500
6030/6030 [=====] - 2s 329us/sample - loss: 0.342
7 - accuracy: 0.8614
Epoch 156/500
6030/6030 [=====] - 2s 256us/sample - loss: 0.342
6 - accuracy: 0.8605
Epoch 157/500
6030/6030 [=====] - 2s 277us/sample - loss: 0.342
9 - accuracy: 0.8595
Epoch 158/500
6030/6030 [=====] - 2s 292us/sample - loss: 0.342
```

```
7 - accuracy: 0.8595
Epoch 159/500
6030/6030 [=====] - 2s 249us/sample - loss: 0.342
4 - accuracy: 0.8607
Epoch 160/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.342
5 - accuracy: 0.8570
Epoch 161/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.342
5 - accuracy: 0.8585
Epoch 162/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.342
6 - accuracy: 0.8607
Epoch 163/500
6030/6030 [=====] - 1s 247us/sample - loss: 0.342
2 - accuracy: 0.8605
Epoch 164/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.342
1 - accuracy: 0.8580
Epoch 165/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.342
1 - accuracy: 0.8597
Epoch 166/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.342
3 - accuracy: 0.8600
Epoch 167/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.342
5 - accuracy: 0.8592
Epoch 168/500
6030/6030 [=====] - 2s 252us/sample - loss: 0.342
3 - accuracy: 0.8607
Epoch 169/500
6030/6030 [=====] - 1s 234us/sample - loss: 0.342
2 - accuracy: 0.8590
Epoch 170/500
6030/6030 [=====] - 2s 310us/sample - loss: 0.342
1 - accuracy: 0.8584
Epoch 171/500
6030/6030 [=====] - 2s 325us/sample - loss: 0.341
8 - accuracy: 0.8599
Epoch 172/500
6030/6030 [=====] - 1s 238us/sample - loss: 0.341
9 - accuracy: 0.8592
Epoch 173/500
6030/6030 [=====] - 1s 236us/sample - loss: 0.341
5 - accuracy: 0.8589
Epoch 174/500
6030/6030 [=====] - 2s 286us/sample - loss: 0.341
7 - accuracy: 0.8599
Epoch 175/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.341
9 - accuracy: 0.8609
Epoch 176/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.341
8 - accuracy: 0.8602
Epoch 177/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.341
2 - accuracy: 0.8602
Epoch 178/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.342
0 - accuracy: 0.8600
```

Epoch 179/500  
6030/6030 [=====] - 1s 221us/sample - loss: 0.341  
6 - accuracy: 0.8607  
Epoch 180/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.341  
5 - accuracy: 0.8579  
Epoch 181/500  
6030/6030 [=====] - 2s 260us/sample - loss: 0.341  
4 - accuracy: 0.8610  
Epoch 182/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.341  
1 - accuracy: 0.8600  
Epoch 183/500  
6030/6030 [=====] - 1s 230us/sample - loss: 0.341  
6 - accuracy: 0.8580  
Epoch 184/500  
6030/6030 [=====] - 1s 228us/sample - loss: 0.341  
9 - accuracy: 0.8594  
Epoch 185/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.341  
3 - accuracy: 0.8604  
Epoch 186/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.341  
6 - accuracy: 0.8605  
Epoch 187/500  
6030/6030 [=====] - 1s 213us/sample - loss: 0.341  
3 - accuracy: 0.8587  
Epoch 188/500  
6030/6030 [=====] - 1s 222us/sample - loss: 0.341  
5 - accuracy: 0.8610  
Epoch 189/500  
6030/6030 [=====] - 1s 221us/sample - loss: 0.341  
3 - accuracy: 0.8582  
Epoch 190/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.341  
3 - accuracy: 0.8597  
Epoch 191/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.341  
1 - accuracy: 0.8605  
Epoch 192/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.340  
7 - accuracy: 0.8599  
Epoch 193/500  
6030/6030 [=====] - 1s 212us/sample - loss: 0.341  
4 - accuracy: 0.8604  
Epoch 194/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.341  
3 - accuracy: 0.8597  
Epoch 195/500  
6030/6030 [=====] - 1s 221us/sample - loss: 0.340  
7 - accuracy: 0.8595 - loss:  
Epoch 196/500  
6030/6030 [=====] - 1s 211us/sample - loss: 0.341  
3 - accuracy: 0.8589  
Epoch 197/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.341  
0 - accuracy: 0.8594  
Epoch 198/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.341  
1 - accuracy: 0.8604  
Epoch 199/500

```
6030/6030 [=====] - 1s 191us/sample - loss: 0.340
9 - accuracy: 0.8595
Epoch 200/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.341
0 - accuracy: 0.8595
Epoch 201/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.340
8 - accuracy: 0.8599
Epoch 202/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.340
6 - accuracy: 0.8617
Epoch 203/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.340
9 - accuracy: 0.8594
Epoch 204/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.340
5 - accuracy: 0.8600
Epoch 205/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.340
8 - accuracy: 0.8595
Epoch 206/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.340
7 - accuracy: 0.8594
Epoch 207/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.340
5 - accuracy: 0.8585
Epoch 208/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.340
5 - accuracy: 0.8597
Epoch 209/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.340
5 - accuracy: 0.8609
Epoch 210/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.340
6 - accuracy: 0.8597
Epoch 211/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.340
4 - accuracy: 0.8577
Epoch 212/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.340
6 - accuracy: 0.8594
Epoch 213/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.340
4 - accuracy: 0.8589
Epoch 214/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.340
6 - accuracy: 0.8600
Epoch 215/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.340
5 - accuracy: 0.8589
Epoch 216/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.340
3 - accuracy: 0.8600
Epoch 217/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.340
2 - accuracy: 0.8580
Epoch 218/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.340
5 - accuracy: 0.8610
Epoch 219/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.340
```

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1 - accuracy: 0.8610
Epoch 220/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.340
4 - accuracy: 0.8579
Epoch 221/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.340
4 - accuracy: 0.8590
Epoch 222/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.340
5 - accuracy: 0.8595
Epoch 223/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.340
2 - accuracy: 0.8594
Epoch 224/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.340
1 - accuracy: 0.8592
Epoch 225/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.339
9 - accuracy: 0.8595
Epoch 226/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.340
4 - accuracy: 0.8594
Epoch 227/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.340
5 - accuracy: 0.8599
Epoch 228/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.339
6 - accuracy: 0.8607
Epoch 229/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.339
7 - accuracy: 0.8599
Epoch 230/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.340
2 - accuracy: 0.8604
Epoch 231/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.340
3 - accuracy: 0.8607
Epoch 232/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.339
1 - accuracy: 0.8599
Epoch 233/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.340
3 - accuracy: 0.8607
Epoch 234/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.339
9 - accuracy: 0.8595
Epoch 235/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.339
7 - accuracy: 0.8599
Epoch 236/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.339
8 - accuracy: 0.8612
Epoch 237/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.340
0 - accuracy: 0.8599
Epoch 238/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.339
9 - accuracy: 0.8605
Epoch 239/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.340
1 - accuracy: 0.8582
```

Epoch 240/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.340  
0 - accuracy: 0.8579  
Epoch 241/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.339  
7 - accuracy: 0.8584  
Epoch 242/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.339  
9 - accuracy: 0.8604  
Epoch 243/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.339  
6 - accuracy: 0.8595  
Epoch 244/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.339  
6 - accuracy: 0.8590  
Epoch 245/500  
6030/6030 [=====] - 1s 217us/sample - loss: 0.340  
1 - accuracy: 0.8590  
Epoch 246/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.339  
7 - accuracy: 0.8594  
Epoch 247/500  
6030/6030 [=====] - 1s 218us/sample - loss: 0.339  
8 - accuracy: 0.8595  
Epoch 248/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.339  
8 - accuracy: 0.8600  
Epoch 249/500  
6030/6030 [=====] - 2s 273us/sample - loss: 0.339  
3 - accuracy: 0.8582  
Epoch 250/500  
6030/6030 [=====] - 2s 286us/sample - loss: 0.339  
0 - accuracy: 0.8585  
Epoch 251/500  
6030/6030 [=====] - 2s 262us/sample - loss: 0.339  
5 - accuracy: 0.8594  
Epoch 252/500  
6030/6030 [=====] - 2s 254us/sample - loss: 0.339  
8 - accuracy: 0.8597  
Epoch 253/500  
6030/6030 [=====] - 2s 280us/sample - loss: 0.339  
9 - accuracy: 0.8585  
Epoch 254/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.339  
5 - accuracy: 0.8580  
Epoch 255/500  
6030/6030 [=====] - 2s 256us/sample - loss: 0.339  
3 - accuracy: 0.8605  
Epoch 256/500  
6030/6030 [=====] - 2s 276us/sample - loss: 0.339  
7 - accuracy: 0.8595  
Epoch 257/500  
6030/6030 [=====] - 2s 280us/sample - loss: 0.339  
6 - accuracy: 0.8592  
Epoch 258/500  
6030/6030 [=====] - 2s 272us/sample - loss: 0.338  
5 - accuracy: 0.8605  
Epoch 259/500  
6030/6030 [=====] - 1s 249us/sample - loss: 0.339  
4 - accuracy: 0.8597  
Epoch 260/500



```
6030/6030 [=====] - 1s 197us/sample - loss: 0.339
3 - accuracy: 0.8599
Epoch 261/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.339
3 - accuracy: 0.8597
Epoch 262/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.339
1 - accuracy: 0.8592
Epoch 263/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.339
0 - accuracy: 0.8607
Epoch 264/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.338
7 - accuracy: 0.8592
Epoch 265/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.338
7 - accuracy: 0.8602
Epoch 266/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.338
7 - accuracy: 0.8582
Epoch 267/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.338
6 - accuracy: 0.8597
Epoch 268/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.338
5 - accuracy: 0.8600
Epoch 269/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.338
4 - accuracy: 0.8589
Epoch 270/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.338
4 - accuracy: 0.8575
Epoch 271/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.338
2 - accuracy: 0.8577
Epoch 272/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.338
1 - accuracy: 0.8599
Epoch 273/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.337
3 - accuracy: 0.8595
Epoch 274/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.338
3 - accuracy: 0.8597
Epoch 275/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.338
0 - accuracy: 0.8619
Epoch 276/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.338
2 - accuracy: 0.8589
Epoch 277/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.338
3 - accuracy: 0.8587
Epoch 278/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.337
7 - accuracy: 0.8595
Epoch 279/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.337
7 - accuracy: 0.8614
Epoch 280/500
6030/6030 [=====] - 1s 233us/sample - loss: 0.338
```

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3 - accuracy: 0.8580
Epoch 281/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.337
9 - accuracy: 0.8595
Epoch 282/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.338
1 - accuracy: 0.8599
Epoch 283/500
6030/6030 [=====] - 2s 255us/sample - loss: 0.338
1 - accuracy: 0.8595
Epoch 284/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.337
7 - accuracy: 0.8590
Epoch 285/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.338
2 - accuracy: 0.8589
Epoch 286/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.337
7 - accuracy: 0.8607
Epoch 287/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.338
1 - accuracy: 0.8585
Epoch 288/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.337
2 - accuracy: 0.8604
Epoch 289/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.337
8 - accuracy: 0.8587
Epoch 290/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.337
9 - accuracy: 0.8600
Epoch 291/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.337
8 - accuracy: 0.8594
Epoch 292/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.337
4 - accuracy: 0.8589
Epoch 293/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.337
8 - accuracy: 0.8597
Epoch 294/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.337
5 - accuracy: 0.8610
Epoch 295/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.337
4 - accuracy: 0.8597
Epoch 296/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.337
7 - accuracy: 0.8592
Epoch 297/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.337
2 - accuracy: 0.8600
Epoch 298/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.337
7 - accuracy: 0.8597
Epoch 299/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.337
1 - accuracy: 0.8614
Epoch 300/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.337
3 - accuracy: 0.8614
```

Epoch 301/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.337  
6 - accuracy: 0.8605  
Epoch 302/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.337  
7 - accuracy: 0.8595  
Epoch 303/500  
6030/6030 [=====] - 1s 219us/sample - loss: 0.337  
6 - accuracy: 0.8600  
Epoch 304/500  
6030/6030 [=====] - 1s 220us/sample - loss: 0.337  
4 - accuracy: 0.8597  
Epoch 305/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.337  
1 - accuracy: 0.8590  
Epoch 306/500  
6030/6030 [=====] - 1s 221us/sample - loss: 0.337  
7 - accuracy: 0.8595  
Epoch 307/500  
6030/6030 [=====] - 1s 220us/sample - loss: 0.337  
4 - accuracy: 0.8604  
Epoch 308/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.337  
1 - accuracy: 0.8605  
Epoch 309/500  
6030/6030 [=====] - 1s 224us/sample - loss: 0.337  
6 - accuracy: 0.8594  
Epoch 310/500  
6030/6030 [=====] - 1s 207us/sample - loss: 0.337  
4 - accuracy: 0.8607  
Epoch 311/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.337  
1 - accuracy: 0.8619  
Epoch 312/500  
6030/6030 [=====] - 1s 222us/sample - loss: 0.337  
0 - accuracy: 0.8612  
Epoch 313/500  
6030/6030 [=====] - 1s 214us/sample - loss: 0.337  
0 - accuracy: 0.8607  
Epoch 314/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.337  
4 - accuracy: 0.8607  
Epoch 315/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.337  
4 - accuracy: 0.8604  
Epoch 316/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.336  
6 - accuracy: 0.8595  
Epoch 317/500  
6030/6030 [=====] - 1s 231us/sample - loss: 0.337  
4 - accuracy: 0.8619  
Epoch 318/500  
6030/6030 [=====] - 1s 225us/sample - loss: 0.337  
2 - accuracy: 0.8615  
Epoch 319/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.337  
0 - accuracy: 0.8599  
Epoch 320/500  
6030/6030 [=====] - 1s 207us/sample - loss: 0.336  
8 - accuracy: 0.8605  
Epoch 321/500

```
6030/6030 [=====] - 1s 210us/sample - loss: 0.336
9 - accuracy: 0.8614
Epoch 322/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.336
8 - accuracy: 0.8624
Epoch 323/500
6030/6030 [=====] - 1s 224us/sample - loss: 0.337
0 - accuracy: 0.8600
Epoch 324/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.336
5 - accuracy: 0.8609
Epoch 325/500
6030/6030 [=====] - 1s 234us/sample - loss: 0.337
3 - accuracy: 0.8610
Epoch 326/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.336
7 - accuracy: 0.8604
Epoch 327/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.336
9 - accuracy: 0.8604
Epoch 328/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.337
0 - accuracy: 0.8610
Epoch 329/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.337
0 - accuracy: 0.8595
Epoch 330/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.336
8 - accuracy: 0.8624
Epoch 331/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.336
6 - accuracy: 0.8619
Epoch 332/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.336
1 - accuracy: 0.8615
Epoch 333/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.336
7 - accuracy: 0.8617
Epoch 334/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.336
9 - accuracy: 0.8625
Epoch 335/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.336
8 - accuracy: 0.8612
Epoch 336/500
6030/6030 [=====] - 1s 224us/sample - loss: 0.336
6 - accuracy: 0.8599
Epoch 337/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.336
2 - accuracy: 0.8617 - loss: 0.3
Epoch 338/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.336
7 - accuracy: 0.8605
Epoch 339/500
6030/6030 [=====] - 2s 320us/sample - loss: 0.336
8 - accuracy: 0.8602
Epoch 340/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.336
7 - accuracy: 0.8604
Epoch 341/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.336
```

```
8 - accuracy: 0.8607
Epoch 342/500
6030/6030 [=====] - 2s 257us/sample - loss: 0.336
6 - accuracy: 0.8595
Epoch 343/500
6030/6030 [=====] - 2s 255us/sample - loss: 0.336
7 - accuracy: 0.8602
Epoch 344/500
6030/6030 [=====] - 2s 293us/sample - loss: 0.336
2 - accuracy: 0.8604
Epoch 345/500
6030/6030 [=====] - 2s 282us/sample - loss: 0.336
5 - accuracy: 0.8615
Epoch 346/500
6030/6030 [=====] - 2s 289us/sample - loss: 0.336
5 - accuracy: 0.8609
Epoch 347/500
6030/6030 [=====] - 2s 302us/sample - loss: 0.336
4 - accuracy: 0.8617
Epoch 348/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.336
6 - accuracy: 0.8625
Epoch 349/500
6030/6030 [=====] - 2s 318us/sample - loss: 0.336
2 - accuracy: 0.8600
Epoch 350/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.336
7 - accuracy: 0.8629
Epoch 351/500
6030/6030 [=====] - 2s 270us/sample - loss: 0.336
8 - accuracy: 0.8615 - loss: 0.3374 - accuracy: 0.86
Epoch 352/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.336
3 - accuracy: 0.8617
Epoch 353/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.336
7 - accuracy: 0.8602
Epoch 354/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.336
0 - accuracy: 0.8625
Epoch 355/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.336
5 - accuracy: 0.8620
Epoch 356/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.336
6 - accuracy: 0.8602
Epoch 357/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.335
8 - accuracy: 0.8622
Epoch 358/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.336
6 - accuracy: 0.8607
Epoch 359/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.336
1 - accuracy: 0.8633
Epoch 360/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.336
7 - accuracy: 0.8604
Epoch 361/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.335
6 - accuracy: 0.8622
```

Epoch 362/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.336  
2 - accuracy: 0.8614  
Epoch 363/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.336  
5 - accuracy: 0.8602  
Epoch 364/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.336  
3 - accuracy: 0.8615  
Epoch 365/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.335  
8 - accuracy: 0.8625  
Epoch 366/500  
6030/6030 [=====] - 1s 210us/sample - loss: 0.336  
3 - accuracy: 0.8615  
Epoch 367/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.336  
0 - accuracy: 0.8630  
Epoch 368/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.335  
9 - accuracy: 0.8619  
Epoch 369/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.336  
2 - accuracy: 0.8610  
Epoch 370/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.336  
2 - accuracy: 0.8620  
Epoch 371/500  
6030/6030 [=====] - 1s 210us/sample - loss: 0.336  
4 - accuracy: 0.8627  
Epoch 372/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.336  
2 - accuracy: 0.8617  
Epoch 373/500  
6030/6030 [=====] - 1s 213us/sample - loss: 0.336  
1 - accuracy: 0.8609  
Epoch 374/500  
6030/6030 [=====] - 1s 218us/sample - loss: 0.336  
4 - accuracy: 0.8610  
Epoch 375/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.335  
8 - accuracy: 0.8635  
Epoch 376/500  
6030/6030 [=====] - 1s 212us/sample - loss: 0.336  
1 - accuracy: 0.8610  
Epoch 377/500  
6030/6030 [=====] - 1s 217us/sample - loss: 0.335  
9 - accuracy: 0.8620  
Epoch 378/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.336  
1 - accuracy: 0.8612  
Epoch 379/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.336  
1 - accuracy: 0.8635  
Epoch 380/500  
6030/6030 [=====] - 1s 225us/sample - loss: 0.336  
0 - accuracy: 0.8619  
Epoch 381/500  
6030/6030 [=====] - 2s 255us/sample - loss: 0.336  
1 - accuracy: 0.8614  
Epoch 382/500

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6030/6030 [=====] - 1s 204us/sample - loss: 0.336
0 - accuracy: 0.8622
Epoch 383/500
6030/6030 [=====] - 1s 239us/sample - loss: 0.336
1 - accuracy: 0.8627
Epoch 384/500
6030/6030 [=====] - 1s 247us/sample - loss: 0.335
8 - accuracy: 0.8607
Epoch 385/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.336
3 - accuracy: 0.8609
Epoch 386/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.335
6 - accuracy: 0.8612
Epoch 387/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.335
9 - accuracy: 0.8597
Epoch 388/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.335
6 - accuracy: 0.8630
Epoch 389/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.335
8 - accuracy: 0.8627
Epoch 390/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.335
8 - accuracy: 0.8629
Epoch 391/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.335
4 - accuracy: 0.8617
Epoch 392/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.335
9 - accuracy: 0.8624
Epoch 393/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.335
8 - accuracy: 0.8610
Epoch 394/500
6030/6030 [=====] - 2s 296us/sample - loss: 0.335
8 - accuracy: 0.8638
Epoch 395/500
6030/6030 [=====] - 2s 281us/sample - loss: 0.336
1 - accuracy: 0.8622
Epoch 396/500
6030/6030 [=====] - 2s 316us/sample - loss: 0.335
9 - accuracy: 0.8599
Epoch 397/500
6030/6030 [=====] - 2s 269us/sample - loss: 0.335
6 - accuracy: 0.8630
Epoch 398/500
6030/6030 [=====] - 2s 326us/sample - loss: 0.335
6 - accuracy: 0.8638
Epoch 399/500
6030/6030 [=====] - 2s 309us/sample - loss: 0.336
1 - accuracy: 0.8620
Epoch 400/500
6030/6030 [=====] - 2s 294us/sample - loss: 0.335
7 - accuracy: 0.8619
Epoch 401/500
6030/6030 [=====] - 1s 247us/sample - loss: 0.336
0 - accuracy: 0.8633
Epoch 402/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.335
```

```
6 - accuracy: 0.8617
Epoch 403/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.335
9 - accuracy: 0.8630
Epoch 404/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.335
7 - accuracy: 0.8599
Epoch 405/500
6030/6030 [=====] - 2s 249us/sample - loss: 0.335
7 - accuracy: 0.8620
Epoch 406/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.335
6 - accuracy: 0.8615
Epoch 407/500
6030/6030 [=====] - 2s 251us/sample - loss: 0.336
2 - accuracy: 0.8624
Epoch 408/500
6030/6030 [=====] - 2s 302us/sample - loss: 0.335
9 - accuracy: 0.8627
Epoch 409/500
6030/6030 [=====] - 1s 240us/sample - loss: 0.335
9 - accuracy: 0.8633
Epoch 410/500
6030/6030 [=====] - 2s 259us/sample - loss: 0.335
6 - accuracy: 0.8632 - loss: 0.3
Epoch 411/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.335
3 - accuracy: 0.8607
Epoch 412/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.336
1 - accuracy: 0.8627
Epoch 413/500
6030/6030 [=====] - 2s 281us/sample - loss: 0.335
6 - accuracy: 0.8642
Epoch 414/500
6030/6030 [=====] - 2s 252us/sample - loss: 0.335
9 - accuracy: 0.8615
Epoch 415/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.335
9 - accuracy: 0.8609
Epoch 416/500
6030/6030 [=====] - 2s 258us/sample - loss: 0.335
5 - accuracy: 0.8614
Epoch 417/500
6030/6030 [=====] - 2s 251us/sample - loss: 0.335
8 - accuracy: 0.8624
Epoch 418/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.336
2 - accuracy: 0.8605
Epoch 419/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.335
9 - accuracy: 0.8637
Epoch 420/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.335
7 - accuracy: 0.8622
Epoch 421/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.335
7 - accuracy: 0.8633
Epoch 422/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.335
8 - accuracy: 0.8620
```



Epoch 423/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.335  
7 - accuracy: 0.8622  
Epoch 424/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.336  
1 - accuracy: 0.8624  
Epoch 425/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.335  
9 - accuracy: 0.8627  
Epoch 426/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.335  
7 - accuracy: 0.8622  
Epoch 427/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.335  
9 - accuracy: 0.8620  
Epoch 428/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.335  
9 - accuracy: 0.8600  
Epoch 429/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.335  
9 - accuracy: 0.8629  
Epoch 430/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.335  
1 - accuracy: 0.8627  
Epoch 431/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.335  
3 - accuracy: 0.8614  
Epoch 432/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.335  
2 - accuracy: 0.8647  
Epoch 433/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.335  
8 - accuracy: 0.8619  
Epoch 434/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.336  
3 - accuracy: 0.8617  
Epoch 435/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.335  
9 - accuracy: 0.8620  
Epoch 436/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.335  
5 - accuracy: 0.8635  
Epoch 437/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.335  
7 - accuracy: 0.8614  
Epoch 438/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.336  
2 - accuracy: 0.8612  
Epoch 439/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.335  
6 - accuracy: 0.8635  
Epoch 440/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.336  
0 - accuracy: 0.8627  
Epoch 441/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.335  
4 - accuracy: 0.8607  
Epoch 442/500  
6030/6030 [=====] - 1s 236us/sample - loss: 0.335  
4 - accuracy: 0.8605  
Epoch 443/500

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6030/6030 [=====] - 2s 257us/sample - loss: 0.335
7 - accuracy: 0.8612
Epoch 444/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.335
5 - accuracy: 0.8605
Epoch 445/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.335
6 - accuracy: 0.8638
Epoch 446/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.335
3 - accuracy: 0.8633
Epoch 447/500
6030/6030 [=====] - ETA: 0s - loss: 0.3353 - accu
racy: 0.86 - 1s 192us/sample - loss: 0.3357 - accuracy: 0.8629
Epoch 448/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.335
2 - accuracy: 0.8607
Epoch 449/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.335
7 - accuracy: 0.8619
Epoch 450/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.335
4 - accuracy: 0.8610
Epoch 451/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.335
6 - accuracy: 0.8627
Epoch 452/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.335
3 - accuracy: 0.8638
Epoch 453/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.335
6 - accuracy: 0.8620
Epoch 454/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.335
4 - accuracy: 0.8620
Epoch 455/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.335
4 - accuracy: 0.8625 - loss: 0.3337 - accuracy: 0.
Epoch 456/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.335
1 - accuracy: 0.8627
Epoch 457/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.335
9 - accuracy: 0.8622
Epoch 458/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.335
6 - accuracy: 0.8642
Epoch 459/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.335
3 - accuracy: 0.8625
Epoch 460/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.335
3 - accuracy: 0.8625
Epoch 461/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.335
7 - accuracy: 0.8624
Epoch 462/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.335
7 - accuracy: 0.8624
Epoch 463/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.335
```

```
4 - accuracy: 0.8637
Epoch 464/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.335
3 - accuracy: 0.8612
Epoch 465/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.335
6 - accuracy: 0.8635
Epoch 466/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.335
2 - accuracy: 0.8619
Epoch 467/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.335
0 - accuracy: 0.8635
Epoch 468/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.335
7 - accuracy: 0.8609
Epoch 469/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.335
4 - accuracy: 0.8632
Epoch 470/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.335
5 - accuracy: 0.8617
Epoch 471/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.335
5 - accuracy: 0.8609
Epoch 472/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.335
1 - accuracy: 0.8632
Epoch 473/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.335
5 - accuracy: 0.8624
Epoch 474/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.335
3 - accuracy: 0.8622
Epoch 475/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.335
1 - accuracy: 0.8637
Epoch 476/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.335
5 - accuracy: 0.8633
Epoch 477/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.335
2 - accuracy: 0.8620
Epoch 478/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.335
4 - accuracy: 0.8640
Epoch 479/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.335
6 - accuracy: 0.8620
Epoch 480/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.335
5 - accuracy: 0.8627
Epoch 481/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.335
7 - accuracy: 0.8647
Epoch 482/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.335
4 - accuracy: 0.8637
Epoch 483/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.335
6 - accuracy: 0.8622
```

Epoch 484/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.335  
2 - accuracy: 0.8627  
Epoch 485/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.335  
4 - accuracy: 0.8610  
Epoch 486/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.335  
6 - accuracy: 0.8624  
Epoch 487/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.335  
8 - accuracy: 0.8632  
Epoch 488/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.335  
4 - accuracy: 0.8625  
Epoch 489/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.335  
4 - accuracy: 0.8635  
Epoch 490/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.335  
6 - accuracy: 0.8620  
Epoch 491/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.335  
5 - accuracy: 0.8627  
Epoch 492/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.335  
5 - accuracy: 0.8640  
Epoch 493/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.335  
3 - accuracy: 0.8614  
Epoch 494/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.335  
4 - accuracy: 0.8637  
Epoch 495/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.335  
5 - accuracy: 0.8640  
Epoch 496/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.334  
5 - accuracy: 0.8645  
Epoch 497/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.335  
9 - accuracy: 0.8637  
Epoch 498/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.335  
5 - accuracy: 0.8632  
Epoch 499/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.335  
9 - accuracy: 0.8629  
Epoch 500/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.335  
7 - accuracy: 0.8635  
Train on 6030 samples  
Epoch 1/500  
6030/6030 [=====] - 2s 289us/sample - loss: 0.592  
6 - accuracy: 0.7912  
Epoch 2/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.452  
0 - accuracy: 0.7912  
Epoch 3/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.433  
6 - accuracy: 0.7912

Epoch 4/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.427  
5 - accuracy: 0.7912  
Epoch 5/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.422  
7 - accuracy: 0.7912  
Epoch 6/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.417  
9 - accuracy: 0.7912  
Epoch 7/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.413  
3 - accuracy: 0.8103  
Epoch 8/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.408  
4 - accuracy: 0.8245  
Epoch 9/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.404  
0 - accuracy: 0.8272  
Epoch 10/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.399  
5 - accuracy: 0.8267  
Epoch 11/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.395  
4 - accuracy: 0.8272  
Epoch 12/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.391  
3 - accuracy: 0.8257  
Epoch 13/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.388  
3 - accuracy: 0.8270  
Epoch 14/500  
6030/6030 [=====] - ETA: 0s - loss: 0.3861 - accuracy: 0.83 - 1s 195us/sample - loss: 0.3850 - accuracy: 0.8383  
Epoch 15/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.382  
7 - accuracy: 0.8367  
Epoch 16/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.379  
9 - accuracy: 0.8416  
Epoch 17/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.378  
0 - accuracy: 0.8428  
Epoch 18/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.375  
7 - accuracy: 0.8423  
Epoch 19/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.373  
5 - accuracy: 0.8463  
Epoch 20/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.372  
2 - accuracy: 0.8469  
Epoch 21/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.370  
3 - accuracy: 0.8489  
Epoch 22/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.368  
9 - accuracy: 0.8481  
Epoch 23/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.368  
4 - accuracy: 0.8466  
Epoch 24/500

```
6030/6030 [=====] - 1s 194us/sample - loss: 0.367
7 - accuracy: 0.8511
Epoch 25/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.366
7 - accuracy: 0.8498
Epoch 26/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.365
1 - accuracy: 0.8491
Epoch 27/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.364
1 - accuracy: 0.8498
Epoch 28/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.363
5 - accuracy: 0.8488
Epoch 29/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.362
3 - accuracy: 0.8527
Epoch 30/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.362
8 - accuracy: 0.8521
Epoch 31/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.361
1 - accuracy: 0.8512
Epoch 32/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.361
3 - accuracy: 0.8514
Epoch 33/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.360
1 - accuracy: 0.8502
Epoch 34/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.359
8 - accuracy: 0.8504
Epoch 35/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.359
5 - accuracy: 0.8519
Epoch 36/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.358
4 - accuracy: 0.8494
Epoch 37/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.358
2 - accuracy: 0.8532
Epoch 38/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.357
9 - accuracy: 0.8526
Epoch 39/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.357
3 - accuracy: 0.8532
Epoch 40/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.357
8 - accuracy: 0.8524
Epoch 41/500
6030/6030 [=====] - 1s 233us/sample - loss: 0.356
8 - accuracy: 0.8541
Epoch 42/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.356
8 - accuracy: 0.8519
Epoch 43/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.356
0 - accuracy: 0.8507
Epoch 44/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.356
```

```
3 - accuracy: 0.8542
Epoch 45/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.356
7 - accuracy: 0.8556 - loss: 0.3553 - accuracy:
Epoch 46/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.354
9 - accuracy: 0.8534
Epoch 47/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.355
1 - accuracy: 0.8527
Epoch 48/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.354
6 - accuracy: 0.8557
Epoch 49/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.354
8 - accuracy: 0.8541
Epoch 50/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.354
1 - accuracy: 0.8549
Epoch 51/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.354
0 - accuracy: 0.8547
Epoch 52/500
6030/6030 [=====] - 1s 247us/sample - loss: 0.353
2 - accuracy: 0.8559
Epoch 53/500
6030/6030 [=====] - 2s 257us/sample - loss: 0.353
3 - accuracy: 0.8556
Epoch 54/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.353
6 - accuracy: 0.8529
Epoch 55/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.352
8 - accuracy: 0.8556
Epoch 56/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.353
0 - accuracy: 0.8554
Epoch 57/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.352
7 - accuracy: 0.8554
Epoch 58/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.352
0 - accuracy: 0.8509
Epoch 59/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.351
8 - accuracy: 0.8557
Epoch 60/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.352
9 - accuracy: 0.8552
Epoch 61/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.352
0 - accuracy: 0.8546
Epoch 62/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.352
3 - accuracy: 0.8570
Epoch 63/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.353
0 - accuracy: 0.8541
Epoch 64/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.351
9 - accuracy: 0.8539
```

Epoch 65/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.351  
3 - accuracy: 0.8561  
Epoch 66/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.352  
1 - accuracy: 0.8524  
Epoch 67/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.351  
3 - accuracy: 0.8541  
Epoch 68/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.352  
1 - accuracy: 0.8527  
Epoch 69/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.351  
9 - accuracy: 0.8542  
Epoch 70/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.351  
6 - accuracy: 0.8531  
Epoch 71/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.351  
4 - accuracy: 0.8557  
Epoch 72/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.351  
4 - accuracy: 0.8549  
Epoch 73/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.351  
5 - accuracy: 0.8567  
Epoch 74/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.350  
4 - accuracy: 0.8546  
Epoch 75/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.351  
1 - accuracy: 0.8564  
Epoch 76/500  
6030/6030 [=====] - 1s 221us/sample - loss: 0.351  
6 - accuracy: 0.8546  
Epoch 77/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.350  
7 - accuracy: 0.8549  
Epoch 78/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.351  
6 - accuracy: 0.8529  
Epoch 79/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.350  
6 - accuracy: 0.8566  
Epoch 80/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.350  
2 - accuracy: 0.8559  
Epoch 81/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.351  
0 - accuracy: 0.8536  
Epoch 82/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.351  
2 - accuracy: 0.8569  
Epoch 83/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.350  
1 - accuracy: 0.8554  
Epoch 84/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.350  
6 - accuracy: 0.8554  
Epoch 85/500



```
6030/6030 [=====] - 1s 182us/sample - loss: 0.350
9 - accuracy: 0.8554
Epoch 86/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.349
7 - accuracy: 0.8564
Epoch 87/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.350
8 - accuracy: 0.8539
Epoch 88/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.350
2 - accuracy: 0.8547
Epoch 89/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.349
4 - accuracy: 0.8567
Epoch 90/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.350
7 - accuracy: 0.8554
Epoch 91/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.350
3 - accuracy: 0.8556
Epoch 92/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.350
2 - accuracy: 0.8532
Epoch 93/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.349
9 - accuracy: 0.8552
Epoch 94/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.350
2 - accuracy: 0.8539
Epoch 95/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.350
4 - accuracy: 0.8532
Epoch 96/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.349
0 - accuracy: 0.8567
Epoch 97/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.349
6 - accuracy: 0.8552
Epoch 98/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.350
2 - accuracy: 0.8532
Epoch 99/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.349
6 - accuracy: 0.8557
Epoch 100/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.349
9 - accuracy: 0.8552
Epoch 101/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.349
9 - accuracy: 0.8561
Epoch 102/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.349
0 - accuracy: 0.8552
Epoch 103/500
6030/6030 [=====] - 1s 244us/sample - loss: 0.349
7 - accuracy: 0.8519
Epoch 104/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.349
5 - accuracy: 0.8547
Epoch 105/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.349
```

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6 - accuracy: 0.8531
Epoch 106/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.349
7 - accuracy: 0.8544
Epoch 107/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.349
2 - accuracy: 0.8546
Epoch 108/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.349
1 - accuracy: 0.8532
Epoch 109/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.349
9 - accuracy: 0.8539
Epoch 110/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.349
8 - accuracy: 0.8551
Epoch 111/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.348
8 - accuracy: 0.8552 - loss: 0.3472 - accuracy: 0.85
Epoch 112/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.349
5 - accuracy: 0.8562
Epoch 113/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.349
7 - accuracy: 0.8559
Epoch 114/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.349
2 - accuracy: 0.8551
Epoch 115/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.349
3 - accuracy: 0.8552
Epoch 116/500
6030/6030 [=====] - 2s 251us/sample - loss: 0.349
6 - accuracy: 0.8552
Epoch 117/500
6030/6030 [=====] - 2s 295us/sample - loss: 0.349
0 - accuracy: 0.8569
Epoch 118/500
6030/6030 [=====] - 2s 262us/sample - loss: 0.349
4 - accuracy: 0.8546
Epoch 119/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.348
6 - accuracy: 0.8561
Epoch 120/500
6030/6030 [=====] - 2s 296us/sample - loss: 0.348
8 - accuracy: 0.8541
Epoch 121/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.349
4 - accuracy: 0.8542
Epoch 122/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.349
0 - accuracy: 0.8559
Epoch 123/500
6030/6030 [=====] - 2s 265us/sample - loss: 0.348
8 - accuracy: 0.8531 - loss: 0.3448 - accuracy: - ETA: 0s - loss: 0.3456
- ac
Epoch 124/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.349
2 - accuracy: 0.8542
Epoch 125/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.349
```

```
6 - accuracy: 0.8529
Epoch 126/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.348
4 - accuracy: 0.8552
Epoch 127/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.349
0 - accuracy: 0.8537
Epoch 128/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.348
0 - accuracy: 0.8554
Epoch 129/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.349
1 - accuracy: 0.8562
Epoch 130/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.348
5 - accuracy: 0.8526
Epoch 131/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.349
1 - accuracy: 0.8579
Epoch 132/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.348
7 - accuracy: 0.8541
Epoch 133/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.349
2 - accuracy: 0.8536
Epoch 134/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.348
2 - accuracy: 0.8537
Epoch 135/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.348
9 - accuracy: 0.8561
Epoch 136/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.349
2 - accuracy: 0.8541
Epoch 137/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.349
2 - accuracy: 0.8531
Epoch 138/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.348
1 - accuracy: 0.8564
Epoch 139/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.347
8 - accuracy: 0.8569
Epoch 140/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.348
8 - accuracy: 0.8532
Epoch 141/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.348
6 - accuracy: 0.8552
Epoch 142/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.348
3 - accuracy: 0.8537
Epoch 143/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.348
8 - accuracy: 0.8557
Epoch 144/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.348
3 - accuracy: 0.8534
Epoch 145/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.347
4 - accuracy: 0.8552
```

Epoch 146/500  
6030/6030 [=====] - 1s 214us/sample - loss: 0.349  
0 - accuracy: 0.8549  
Epoch 147/500  
6030/6030 [=====] - 1s 230us/sample - loss: 0.348  
4 - accuracy: 0.8567  
Epoch 148/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.348  
1 - accuracy: 0.8531  
Epoch 149/500  
6030/6030 [=====] - 1s 233us/sample - loss: 0.348  
2 - accuracy: 0.8574  
Epoch 150/500  
6030/6030 [=====] - 1s 230us/sample - loss: 0.347  
9 - accuracy: 0.8549  
Epoch 151/500  
6030/6030 [=====] - 1s 223us/sample - loss: 0.347  
7 - accuracy: 0.8539  
Epoch 152/500  
6030/6030 [=====] - 2s 302us/sample - loss: 0.348  
4 - accuracy: 0.8541  
Epoch 153/500  
6030/6030 [=====] - 2s 279us/sample - loss: 0.348  
0 - accuracy: 0.8524  
Epoch 154/500  
6030/6030 [=====] - 2s 254us/sample - loss: 0.348  
5 - accuracy: 0.8529  
Epoch 155/500  
6030/6030 [=====] - 1s 240us/sample - loss: 0.347  
1 - accuracy: 0.8539  
Epoch 156/500  
6030/6030 [=====] - 2s 290us/sample - loss: 0.348  
0 - accuracy: 0.8527  
Epoch 157/500  
6030/6030 [=====] - 1s 244us/sample - loss: 0.348  
6 - accuracy: 0.8524 - loss: 0.3454 -  
Epoch 158/500  
6030/6030 [=====] - 1s 245us/sample - loss: 0.348  
5 - accuracy: 0.8549  
Epoch 159/500  
6030/6030 [=====] - 1s 247us/sample - loss: 0.348  
0 - accuracy: 0.8512  
Epoch 160/500  
6030/6030 [=====] - 1s 227us/sample - loss: 0.347  
7 - accuracy: 0.8551  
Epoch 161/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.347  
7 - accuracy: 0.8575  
Epoch 162/500  
6030/6030 [=====] - 1s 215us/sample - loss: 0.348  
0 - accuracy: 0.8541  
Epoch 163/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.348  
0 - accuracy: 0.8575  
Epoch 164/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.348  
5 - accuracy: 0.8542  
Epoch 165/500  
6030/6030 [=====] - 1s 213us/sample - loss: 0.348  
1 - accuracy: 0.8556  
Epoch 166/500

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6030/6030 [=====] - 1s 197us/sample - loss: 0.347
3 - accuracy: 0.8534
Epoch 167/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.347
5 - accuracy: 0.8549
Epoch 168/500
6030/6030 [=====] - 2s 249us/sample - loss: 0.347
0 - accuracy: 0.8569
Epoch 169/500
6030/6030 [=====] - 1s 236us/sample - loss: 0.348
2 - accuracy: 0.8537
Epoch 170/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.347
6 - accuracy: 0.8534
Epoch 171/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.348
4 - accuracy: 0.8529
Epoch 172/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.348
2 - accuracy: 0.8539
Epoch 173/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.347
4 - accuracy: 0.8532
Epoch 174/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.347
9 - accuracy: 0.8522
Epoch 175/500
6030/6030 [=====] - 1s 231us/sample - loss: 0.348
0 - accuracy: 0.8534
Epoch 176/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.347
3 - accuracy: 0.8542
Epoch 177/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.348
3 - accuracy: 0.8536
Epoch 178/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.348
0 - accuracy: 0.8539
Epoch 179/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.348
7 - accuracy: 0.8544
Epoch 180/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.347
3 - accuracy: 0.8532
Epoch 181/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.348
0 - accuracy: 0.8534
Epoch 182/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.347
9 - accuracy: 0.8537
Epoch 183/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.347
9 - accuracy: 0.8541
Epoch 184/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.347
9 - accuracy: 0.8569
Epoch 185/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.347
5 - accuracy: 0.8529
Epoch 186/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.347
```

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9 - accuracy: 0.8549
Epoch 187/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.348
1 - accuracy: 0.8546
Epoch 188/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.346
9 - accuracy: 0.8546
Epoch 189/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.348
0 - accuracy: 0.8527
Epoch 190/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.348
0 - accuracy: 0.8561 - loss: 0.3460 - accuracy
Epoch 191/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.348
0 - accuracy: 0.8544
Epoch 192/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.348
1 - accuracy: 0.8542
Epoch 193/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.346
9 - accuracy: 0.8552
Epoch 194/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.347
9 - accuracy: 0.8552
Epoch 195/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.347
7 - accuracy: 0.8542
Epoch 196/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.347
4 - accuracy: 0.8562
Epoch 197/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.348
3 - accuracy: 0.8547
Epoch 198/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.347
3 - accuracy: 0.8541
Epoch 199/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.346
9 - accuracy: 0.8551
Epoch 200/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.348
1 - accuracy: 0.8534
Epoch 201/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.347
8 - accuracy: 0.8584
Epoch 202/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.347
7 - accuracy: 0.8552
Epoch 203/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.347
9 - accuracy: 0.8541
Epoch 204/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.347
5 - accuracy: 0.8552
Epoch 205/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.348
0 - accuracy: 0.8532
Epoch 206/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.348
0 - accuracy: 0.8519
```

Epoch 207/500  
6030/6030 [=====] - 1s 233us/sample - loss: 0.347  
3 - accuracy: 0.8527  
Epoch 208/500  
6030/6030 [=====] - 1s 214us/sample - loss: 0.346  
8 - accuracy: 0.8567  
Epoch 209/500  
6030/6030 [=====] - 1s 207us/sample - loss: 0.348  
0 - accuracy: 0.8554  
Epoch 210/500  
6030/6030 [=====] - 1s 237us/sample - loss: 0.347  
7 - accuracy: 0.8539  
Epoch 211/500  
6030/6030 [=====] - 1s 243us/sample - loss: 0.348  
0 - accuracy: 0.8524  
Epoch 212/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.346  
5 - accuracy: 0.8556  
Epoch 213/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.347  
7 - accuracy: 0.8539  
Epoch 214/500  
6030/6030 [=====] - 1s 248us/sample - loss: 0.347  
3 - accuracy: 0.8489  
Epoch 215/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.348  
1 - accuracy: 0.8537  
Epoch 216/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.347  
4 - accuracy: 0.8531  
Epoch 217/500  
6030/6030 [=====] - 1s 222us/sample - loss: 0.346  
5 - accuracy: 0.8556  
Epoch 218/500  
6030/6030 [=====] - 1s 215us/sample - loss: 0.347  
8 - accuracy: 0.8536  
Epoch 219/500  
6030/6030 [=====] - 1s 211us/sample - loss: 0.347  
1 - accuracy: 0.8522  
Epoch 220/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.347  
5 - accuracy: 0.8541  
Epoch 221/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.347  
3 - accuracy: 0.8547  
Epoch 222/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.347  
5 - accuracy: 0.8512  
Epoch 223/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.347  
5 - accuracy: 0.8526  
Epoch 224/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.347  
8 - accuracy: 0.8532  
Epoch 225/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.347  
5 - accuracy: 0.8532  
Epoch 226/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.347  
0 - accuracy: 0.8527  
Epoch 227/500

```
6030/6030 [=====] - 1s 182us/sample - loss: 0.347
1 - accuracy: 0.8539
Epoch 228/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.346
8 - accuracy: 0.8569
Epoch 229/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.347
8 - accuracy: 0.8546
Epoch 230/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.347
4 - accuracy: 0.8534
Epoch 231/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.347
3 - accuracy: 0.8526
Epoch 232/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.347
3 - accuracy: 0.8539
Epoch 233/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.347
6 - accuracy: 0.8541
Epoch 234/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.346
5 - accuracy: 0.8524 - loss: 0.3528
Epoch 235/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.347
2 - accuracy: 0.8552
Epoch 236/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.347
1 - accuracy: 0.8522
Epoch 237/500
6030/6030 [=====] - 2s 254us/sample - loss: 0.346
8 - accuracy: 0.8542
Epoch 238/500
6030/6030 [=====] - 2s 262us/sample - loss: 0.346
9 - accuracy: 0.8532
Epoch 239/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.346
2 - accuracy: 0.8532
Epoch 240/500
6030/6030 [=====] - 1s 238us/sample - loss: 0.347
5 - accuracy: 0.8532
Epoch 241/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.346
9 - accuracy: 0.8524
Epoch 242/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.347
0 - accuracy: 0.8561
Epoch 243/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.347
2 - accuracy: 0.8546
Epoch 244/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.345
8 - accuracy: 0.8539
Epoch 245/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.347
2 - accuracy: 0.8522
Epoch 246/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.347
3 - accuracy: 0.8539
Epoch 247/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.347
```



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2 - accuracy: 0.8537
Epoch 248/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.347
4 - accuracy: 0.8524
Epoch 249/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.347
3 - accuracy: 0.8561
Epoch 250/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.347
0 - accuracy: 0.8514
Epoch 251/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.346
5 - accuracy: 0.8547
Epoch 252/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.347
0 - accuracy: 0.8516
Epoch 253/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.347
0 - accuracy: 0.8532
Epoch 254/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.346
8 - accuracy: 0.8564
Epoch 255/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.346
7 - accuracy: 0.8522
Epoch 256/500
6030/6030 [=====] - ETA: 0s - loss: 0.3455 - accuracy: 0.85 - 1s 198us/sample - loss: 0.3468 - accuracy: 0.8544
Epoch 257/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.346
4 - accuracy: 0.8526
Epoch 258/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.347
2 - accuracy: 0.8532
Epoch 259/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.347
7 - accuracy: 0.8541
Epoch 260/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.346
2 - accuracy: 0.8512
Epoch 261/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.346
2 - accuracy: 0.8564
Epoch 262/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.346
8 - accuracy: 0.8537
Epoch 263/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.346
2 - accuracy: 0.8564
Epoch 264/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.347
3 - accuracy: 0.8527
Epoch 265/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.346
9 - accuracy: 0.8547
Epoch 266/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.346
0 - accuracy: 0.8557
Epoch 267/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.346
4 - accuracy: 0.8559
```

Epoch 268/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.347  
3 - accuracy: 0.8551  
Epoch 269/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.347  
2 - accuracy: 0.8549  
Epoch 270/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.347  
4 - accuracy: 0.8529  
Epoch 271/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.346  
5 - accuracy: 0.8544  
Epoch 272/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.347  
1 - accuracy: 0.8534  
Epoch 273/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.345  
6 - accuracy: 0.8551  
Epoch 274/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.346  
7 - accuracy: 0.8580  
Epoch 275/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.346  
4 - accuracy: 0.8554  
Epoch 276/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.346  
8 - accuracy: 0.8547  
Epoch 277/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.346  
8 - accuracy: 0.8536  
Epoch 278/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.346  
9 - accuracy: 0.8544  
Epoch 279/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.346  
6 - accuracy: 0.8532  
Epoch 280/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.347  
0 - accuracy: 0.8559  
Epoch 281/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.346  
6 - accuracy: 0.8541  
Epoch 282/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.346  
4 - accuracy: 0.8561  
Epoch 283/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.346  
8 - accuracy: 0.8549  
Epoch 284/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.346  
4 - accuracy: 0.8536  
Epoch 285/500  
6030/6030 [=====] - 1s 220us/sample - loss: 0.346  
6 - accuracy: 0.8522  
Epoch 286/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.346  
6 - accuracy: 0.8529  
Epoch 287/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.346  
8 - accuracy: 0.8546  
Epoch 288/500

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6030/6030 [=====] - 1s 189us/sample - loss: 0.347
1 - accuracy: 0.8549
Epoch 289/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.346
5 - accuracy: 0.8532
Epoch 290/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.346
2 - accuracy: 0.8577
Epoch 291/500
6030/6030 [=====] - ETA: 0s - loss: 0.3460 - accu
racy: 0.85 - 1s 210us/sample - loss: 0.3460 - accuracy: 0.8557
Epoch 292/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.346
8 - accuracy: 0.8529
Epoch 293/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.346
7 - accuracy: 0.8547
Epoch 294/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.346
7 - accuracy: 0.8521
Epoch 295/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.346
9 - accuracy: 0.8536
Epoch 296/500
6030/6030 [=====] - 1s 232us/sample - loss: 0.345
9 - accuracy: 0.8529
Epoch 297/500
6030/6030 [=====] - 1s 231us/sample - loss: 0.346
1 - accuracy: 0.8554
Epoch 298/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.346
9 - accuracy: 0.8544
Epoch 299/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.346
6 - accuracy: 0.8539
Epoch 300/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.345
7 - accuracy: 0.8524
Epoch 301/500
6030/6030 [=====] - 1s 240us/sample - loss: 0.347
3 - accuracy: 0.8514
Epoch 302/500
6030/6030 [=====] - 1s 239us/sample - loss: 0.347
4 - accuracy: 0.8506
Epoch 303/500
6030/6030 [=====] - 1s 240us/sample - loss: 0.346
3 - accuracy: 0.8561
Epoch 304/500
6030/6030 [=====] - 1s 245us/sample - loss: 0.346
8 - accuracy: 0.8524
Epoch 305/500
6030/6030 [=====] - 2s 250us/sample - loss: 0.347
0 - accuracy: 0.8554
Epoch 306/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.346
6 - accuracy: 0.8529
Epoch 307/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.346
8 - accuracy: 0.8516
Epoch 308/500
6030/6030 [=====] - 1s 239us/sample - loss: 0.346
```

6 - accuracy: 0.8541  
Epoch 309/500  
6030/6030 [=====] - 1s 224us/sample - loss: 0.346  
7 - accuracy: 0.8496  
Epoch 310/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.346  
7 - accuracy: 0.8527  
Epoch 311/500  
6030/6030 [=====] - 2s 271us/sample - loss: 0.346  
2 - accuracy: 0.8532  
Epoch 312/500  
6030/6030 [=====] - 2s 284us/sample - loss: 0.346  
1 - accuracy: 0.8562  
Epoch 313/500  
6030/6030 [=====] - 2s 273us/sample - loss: 0.347  
1 - accuracy: 0.8531 - loss:  
Epoch 314/500  
6030/6030 [=====] - 1s 231us/sample - loss: 0.346  
4 - accuracy: 0.8541  
Epoch 315/500  
6030/6030 [=====] - 1s 213us/sample - loss: 0.347  
1 - accuracy: 0.8522  
Epoch 316/500  
6030/6030 [=====] - 1s 226us/sample - loss: 0.346  
8 - accuracy: 0.8542  
Epoch 317/500  
6030/6030 [=====] - 1s 224us/sample - loss: 0.346  
5 - accuracy: 0.8522  
Epoch 318/500  
6030/6030 [=====] - 2s 264us/sample - loss: 0.346  
8 - accuracy: 0.8524  
Epoch 319/500  
6030/6030 [=====] - 1s 238us/sample - loss: 0.346  
8 - accuracy: 0.8512  
Epoch 320/500  
6030/6030 [=====] - 1s 232us/sample - loss: 0.345  
9 - accuracy: 0.8552  
Epoch 321/500  
6030/6030 [=====] - 2s 257us/sample - loss: 0.346  
7 - accuracy: 0.8534  
Epoch 322/500  
6030/6030 [=====] - 2s 339us/sample - loss: 0.345  
8 - accuracy: 0.8544  
Epoch 323/500  
6030/6030 [=====] - 2s 288us/sample - loss: 0.346  
7 - accuracy: 0.8551  
Epoch 324/500  
6030/6030 [=====] - 2s 269us/sample - loss: 0.346  
4 - accuracy: 0.8517  
Epoch 325/500  
6030/6030 [=====] - 1s 217us/sample - loss: 0.346  
4 - accuracy: 0.8537  
Epoch 326/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.346  
9 - accuracy: 0.8536  
Epoch 327/500  
6030/6030 [=====] - 1s 232us/sample - loss: 0.345  
9 - accuracy: 0.8561  
Epoch 328/500  
6030/6030 [=====] - 2s 250us/sample - loss: 0.346  
4 - accuracy: 0.8544

Epoch 329/500  
6030/6030 [=====] - 2s 251us/sample - loss: 0.346  
7 - accuracy: 0.8524  
Epoch 330/500  
6030/6030 [=====] - 2s 253us/sample - loss: 0.346  
7 - accuracy: 0.8526  
Epoch 331/500  
6030/6030 [=====] - 2s 281us/sample - loss: 0.345  
9 - accuracy: 0.8551  
Epoch 332/500  
6030/6030 [=====] - 1s 225us/sample - loss: 0.346  
2 - accuracy: 0.8542  
Epoch 333/500  
6030/6030 [=====] - 1s 215us/sample - loss: 0.346  
2 - accuracy: 0.8514  
Epoch 334/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.346  
3 - accuracy: 0.8549  
Epoch 335/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.346  
5 - accuracy: 0.8536  
Epoch 336/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.346  
8 - accuracy: 0.8517  
Epoch 337/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.345  
7 - accuracy: 0.8532  
Epoch 338/500  
6030/6030 [=====] - 1s 212us/sample - loss: 0.345  
8 - accuracy: 0.8546  
Epoch 339/500  
6030/6030 [=====] - 1s 210us/sample - loss: 0.346  
0 - accuracy: 0.8526  
Epoch 340/500  
6030/6030 [=====] - 1s 221us/sample - loss: 0.345  
3 - accuracy: 0.8521  
Epoch 341/500  
6030/6030 [=====] - 1s 212us/sample - loss: 0.346  
5 - accuracy: 0.8554  
Epoch 342/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.346  
9 - accuracy: 0.8522  
Epoch 343/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.346  
6 - accuracy: 0.8574  
Epoch 344/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.346  
8 - accuracy: 0.8519  
Epoch 345/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.346  
2 - accuracy: 0.8559  
Epoch 346/500  
6030/6030 [=====] - 1s 212us/sample - loss: 0.345  
8 - accuracy: 0.8521  
Epoch 347/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.345  
9 - accuracy: 0.8531  
Epoch 348/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.345  
5 - accuracy: 0.8549  
Epoch 349/500

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6030/6030 [=====] - 1s 186us/sample - loss: 0.345
9 - accuracy: 0.8549
Epoch 350/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.345
5 - accuracy: 0.8569
Epoch 351/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.346
5 - accuracy: 0.8557 -
Epoch 352/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.346
4 - accuracy: 0.8544
Epoch 353/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.346
3 - accuracy: 0.8519
Epoch 354/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.346
2 - accuracy: 0.8534
Epoch 355/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.345
1 - accuracy: 0.8542
Epoch 356/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.346
1 - accuracy: 0.8526
Epoch 357/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.346
3 - accuracy: 0.8559
Epoch 358/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.346
5 - accuracy: 0.8549
Epoch 359/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.346
0 - accuracy: 0.8542
Epoch 360/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.345
7 - accuracy: 0.8539
Epoch 361/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.345
9 - accuracy: 0.8544
Epoch 362/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.346
1 - accuracy: 0.8549
Epoch 363/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.345
9 - accuracy: 0.8544
Epoch 364/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.346
4 - accuracy: 0.8579
Epoch 365/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.345
9 - accuracy: 0.8552
Epoch 366/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.346
4 - accuracy: 0.8526
Epoch 367/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.346
7 - accuracy: 0.8522
Epoch 368/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.346
2 - accuracy: 0.8541
Epoch 369/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.346
```

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4 - accuracy: 0.8524
Epoch 370/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.345
3 - accuracy: 0.8546
Epoch 371/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.346
2 - accuracy: 0.8546
Epoch 372/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.347
4 - accuracy: 0.8517
Epoch 373/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.345
8 - accuracy: 0.8529
Epoch 374/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.346
3 - accuracy: 0.8552
Epoch 375/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.346
1 - accuracy: 0.8547
Epoch 376/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.346
3 - accuracy: 0.8532
Epoch 377/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.345
6 - accuracy: 0.8552
Epoch 378/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.346
4 - accuracy: 0.8541
Epoch 379/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.345
9 - accuracy: 0.8537
Epoch 380/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.346
6 - accuracy: 0.8537
Epoch 381/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.345
5 - accuracy: 0.8526
Epoch 382/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.346
5 - accuracy: 0.8519
Epoch 383/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.345
3 - accuracy: 0.8557
Epoch 384/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.345
9 - accuracy: 0.8531
Epoch 385/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.345
6 - accuracy: 0.8529
Epoch 386/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.345
9 - accuracy: 0.8541
Epoch 387/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.345
4 - accuracy: 0.8556
Epoch 388/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.346
6 - accuracy: 0.8541
Epoch 389/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.346
0 - accuracy: 0.8559
```

Epoch 390/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.345  
8 - accuracy: 0.8539  
Epoch 391/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.346  
1 - accuracy: 0.8536  
Epoch 392/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.345  
9 - accuracy: 0.8532  
Epoch 393/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.346  
3 - accuracy: 0.8536  
Epoch 394/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.346  
7 - accuracy: 0.8519  
Epoch 395/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.345  
2 - accuracy: 0.8536  
Epoch 396/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.346  
6 - accuracy: 0.8539  
Epoch 397/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.345  
6 - accuracy: 0.8534  
Epoch 398/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.345  
7 - accuracy: 0.8551  
Epoch 399/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.346  
1 - accuracy: 0.8526  
Epoch 400/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.346  
4 - accuracy: 0.8519  
Epoch 401/500  
6030/6030 [=====] - 2s 250us/sample - loss: 0.345  
5 - accuracy: 0.8541  
Epoch 402/500  
6030/6030 [=====] - 1s 241us/sample - loss: 0.345  
9 - accuracy: 0.8527  
Epoch 403/500  
6030/6030 [=====] - 1s 239us/sample - loss: 0.345  
5 - accuracy: 0.8566  
Epoch 404/500  
6030/6030 [=====] - 1s 244us/sample - loss: 0.346  
0 - accuracy: 0.8549  
Epoch 405/500  
6030/6030 [=====] - 2s 251us/sample - loss: 0.345  
9 - accuracy: 0.8546  
Epoch 406/500  
6030/6030 [=====] - 1s 241us/sample - loss: 0.346  
2 - accuracy: 0.8539  
Epoch 407/500  
6030/6030 [=====] - 2s 249us/sample - loss: 0.346  
0 - accuracy: 0.8551  
Epoch 408/500  
6030/6030 [=====] - 2s 262us/sample - loss: 0.345  
4 - accuracy: 0.8531  
Epoch 409/500  
6030/6030 [=====] - 1s 245us/sample - loss: 0.346  
1 - accuracy: 0.8557  
Epoch 410/500



```
6030/6030 [=====] - 1s 189us/sample - loss: 0.346
4 - accuracy: 0.8536
Epoch 411/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.346
0 - accuracy: 0.8511
Epoch 412/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.344
7 - accuracy: 0.8541
Epoch 413/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.345
5 - accuracy: 0.8539
Epoch 414/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.346
1 - accuracy: 0.8522
Epoch 415/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.346
4 - accuracy: 0.8549
Epoch 416/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.346
9 - accuracy: 0.8541
Epoch 417/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.346
0 - accuracy: 0.8559
Epoch 418/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.345
4 - accuracy: 0.8546
Epoch 419/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.346
1 - accuracy: 0.8569
Epoch 420/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.345
5 - accuracy: 0.8536
Epoch 421/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.346
6 - accuracy: 0.8522
Epoch 422/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.345
7 - accuracy: 0.8521
Epoch 423/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.346
3 - accuracy: 0.8517
Epoch 424/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.344
5 - accuracy: 0.8562
Epoch 425/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.346
1 - accuracy: 0.8524
Epoch 426/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.345
3 - accuracy: 0.8532
Epoch 427/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.346
0 - accuracy: 0.8537
Epoch 428/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.346
0 - accuracy: 0.8531
Epoch 429/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.345
3 - accuracy: 0.8559
Epoch 430/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.345
```

```
7 - accuracy: 0.8534
Epoch 431/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.345
0 - accuracy: 0.8557
Epoch 432/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.345
6 - accuracy: 0.8547
Epoch 433/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.346
4 - accuracy: 0.8534
Epoch 434/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.346
3 - accuracy: 0.8519
Epoch 435/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.345
8 - accuracy: 0.8542
Epoch 436/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.346
3 - accuracy: 0.8527
Epoch 437/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.345
5 - accuracy: 0.8529
Epoch 438/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.346
5 - accuracy: 0.8546
Epoch 439/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.345
9 - accuracy: 0.8556
Epoch 440/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.346
0 - accuracy: 0.8536
Epoch 441/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.346
3 - accuracy: 0.8524
Epoch 442/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.345
8 - accuracy: 0.8529
Epoch 443/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.346
0 - accuracy: 0.8529
Epoch 444/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.345
9 - accuracy: 0.8524
Epoch 445/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.346
1 - accuracy: 0.8534
Epoch 446/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.345
9 - accuracy: 0.8537
Epoch 447/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.345
9 - accuracy: 0.8554
Epoch 448/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.345
2 - accuracy: 0.8551
Epoch 449/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.346
2 - accuracy: 0.8539
Epoch 450/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.345
3 - accuracy: 0.8561
```

Epoch 451/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.345  
7 - accuracy: 0.8529  
Epoch 452/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.345  
6 - accuracy: 0.8522  
Epoch 453/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.345  
5 - accuracy: 0.8546  
Epoch 454/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.345  
6 - accuracy: 0.8531  
Epoch 455/500  
6030/6030 [=====] - ETA: 0s - loss: 0.3464 - accuracy: 0.85 - 1s 183us/sample - loss: 0.3460 - accuracy: 0.8526  
Epoch 456/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.346  
1 - accuracy: 0.8534  
Epoch 457/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.345  
7 - accuracy: 0.8527  
Epoch 458/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.345  
5 - accuracy: 0.8547  
Epoch 459/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.345  
8 - accuracy: 0.8542  
Epoch 460/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.344  
7 - accuracy: 0.8539  
Epoch 461/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.346  
0 - accuracy: 0.8516  
Epoch 462/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.346  
1 - accuracy: 0.8534  
Epoch 463/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.345  
7 - accuracy: 0.8541  
Epoch 464/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.345  
8 - accuracy: 0.8522  
Epoch 465/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.345  
4 - accuracy: 0.8566  
Epoch 466/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.345  
8 - accuracy: 0.8566  
Epoch 467/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.344  
7 - accuracy: 0.8522  
Epoch 468/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.345  
7 - accuracy: 0.8511  
Epoch 469/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.345  
6 - accuracy: 0.8542  
Epoch 470/500  
6030/6030 [=====] - 1s 232us/sample - loss: 0.345  
6 - accuracy: 0.8542  
Epoch 471/500

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6030/6030 [=====] - 1s 217us/sample - loss: 0.345
6 - accuracy: 0.8556
Epoch 472/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.346
4 - accuracy: 0.8522
Epoch 473/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.344
9 - accuracy: 0.8542
Epoch 474/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.345
4 - accuracy: 0.8526
Epoch 475/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.345
7 - accuracy: 0.8532
Epoch 476/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.346
2 - accuracy: 0.8534
Epoch 477/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.346
0 - accuracy: 0.8544
Epoch 478/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.345
6 - accuracy: 0.8569
Epoch 479/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.345
5 - accuracy: 0.8546
Epoch 480/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.345
5 - accuracy: 0.8516
Epoch 481/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.345
8 - accuracy: 0.8544
Epoch 482/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.345
8 - accuracy: 0.8534
Epoch 483/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.345
1 - accuracy: 0.8536
Epoch 484/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.345
8 - accuracy: 0.8539
Epoch 485/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.345
9 - accuracy: 0.8544
Epoch 486/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.345
3 - accuracy: 0.8544
Epoch 487/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.345
3 - accuracy: 0.8547
Epoch 488/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.345
7 - accuracy: 0.8542
Epoch 489/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.345
3 - accuracy: 0.8536
Epoch 490/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.345
8 - accuracy: 0.8542
Epoch 491/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.345
```

```
5 - accuracy: 0.8512
Epoch 492/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.345
4 - accuracy: 0.8531
Epoch 493/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.345
2 - accuracy: 0.8562
Epoch 494/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.345
2 - accuracy: 0.8531
Epoch 495/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.345
8 - accuracy: 0.8539
Epoch 496/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.346
0 - accuracy: 0.8531
Epoch 497/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.345
9 - accuracy: 0.8562
Epoch 498/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.346
0 - accuracy: 0.8532
Epoch 499/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.344
9 - accuracy: 0.8567
Epoch 500/500
6030/6030 [=====] - ETA: 0s - loss: 0.3451 - accuracy: 0.85 - 1s 192us/sample - loss: 0.3446 - accuracy: 0.8552
Train on 6030 samples
Epoch 1/500
6030/6030 [=====] - 3s 416us/sample - loss: 0.622
2 - accuracy: 0.7909
Epoch 2/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.471
8 - accuracy: 0.7934
Epoch 3/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.442
8 - accuracy: 0.7934
Epoch 4/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.435
9 - accuracy: 0.7934
Epoch 5/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.432
4 - accuracy: 0.7934
Epoch 6/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.429
7 - accuracy: 0.7934
Epoch 7/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.427
7 - accuracy: 0.7934
Epoch 8/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.425
4 - accuracy: 0.7934
Epoch 9/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.423
7 - accuracy: 0.7935
Epoch 10/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.421
4 - accuracy: 0.8182
Epoch 11/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.420
```

```
3 - accuracy: 0.8207
Epoch 12/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.419
0 - accuracy: 0.8250
Epoch 13/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.417
9 - accuracy: 0.8272
Epoch 14/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.416
7 - accuracy: 0.8279
Epoch 15/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.415
9 - accuracy: 0.8290
Epoch 16/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.415
2 - accuracy: 0.8307
Epoch 17/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.414
1 - accuracy: 0.8295
Epoch 18/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.413
5 - accuracy: 0.8310
Epoch 19/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.413
0 - accuracy: 0.8330
Epoch 20/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.412
3 - accuracy: 0.8335
Epoch 21/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.411
9 - accuracy: 0.8333
Epoch 22/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.411
5 - accuracy: 0.8317
Epoch 23/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.411
0 - accuracy: 0.8337
Epoch 24/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.410
4 - accuracy: 0.8328
Epoch 25/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.410
0 - accuracy: 0.8325
Epoch 26/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.409
6 - accuracy: 0.8328
Epoch 27/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.409
3 - accuracy: 0.8338
Epoch 28/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.408
9 - accuracy: 0.8333
Epoch 29/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.408
5 - accuracy: 0.8332
Epoch 30/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.408
5 - accuracy: 0.8343
Epoch 31/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.408
0 - accuracy: 0.8342
```

Epoch 32/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.407  
7 - accuracy: 0.8342

Epoch 33/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.407  
6 - accuracy: 0.8327

Epoch 34/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.407  
4 - accuracy: 0.8342

Epoch 35/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.407  
2 - accuracy: 0.8313

Epoch 36/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.406  
7 - accuracy: 0.8337

Epoch 37/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.407  
0 - accuracy: 0.8332

Epoch 38/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.406  
5 - accuracy: 0.8333

Epoch 39/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.406  
5 - accuracy: 0.8328

Epoch 40/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.406  
0 - accuracy: 0.8340

Epoch 41/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.406  
0 - accuracy: 0.8333

Epoch 42/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.405  
7 - accuracy: 0.8345

Epoch 43/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.406  
1 - accuracy: 0.8325

Epoch 44/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.405  
5 - accuracy: 0.8337

Epoch 45/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.405  
4 - accuracy: 0.8327

Epoch 46/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.405  
5 - accuracy: 0.8325

Epoch 47/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.405  
2 - accuracy: 0.8330

Epoch 48/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.405  
2 - accuracy: 0.8332

Epoch 49/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.405  
0 - accuracy: 0.8343

Epoch 50/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.405  
0 - accuracy: 0.8323

Epoch 51/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.404  
6 - accuracy: 0.8322

Epoch 52/500

```
6030/6030 [=====] - 1s 193us/sample - loss: 0.404
5 - accuracy: 0.8337
Epoch 53/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.404
6 - accuracy: 0.8323
Epoch 54/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.404
4 - accuracy: 0.8322
Epoch 55/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.404
1 - accuracy: 0.8330
Epoch 56/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.404
1 - accuracy: 0.8335
Epoch 57/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.404
0 - accuracy: 0.8332
Epoch 58/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.404
2 - accuracy: 0.8328
Epoch 59/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.403
8 - accuracy: 0.8332
Epoch 60/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.403
8 - accuracy: 0.8345
Epoch 61/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.403
6 - accuracy: 0.8330
Epoch 62/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.403
4 - accuracy: 0.8340
Epoch 63/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.403
4 - accuracy: 0.8333
Epoch 64/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.403
6 - accuracy: 0.8347
Epoch 65/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.403
2 - accuracy: 0.8337
Epoch 66/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.403
3 - accuracy: 0.8338
Epoch 67/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.403
2 - accuracy: 0.8342
Epoch 68/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.403
3 - accuracy: 0.8335
Epoch 69/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.402
9 - accuracy: 0.8340
Epoch 70/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.403
2 - accuracy: 0.8318
Epoch 71/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.402
7 - accuracy: 0.8330
Epoch 72/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.402
```



```
7 - accuracy: 0.8335
Epoch 73/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.402
8 - accuracy: 0.8330
Epoch 74/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.402
5 - accuracy: 0.8328
Epoch 75/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.402
8 - accuracy: 0.8342
Epoch 76/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.402
7 - accuracy: 0.8318
Epoch 77/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.402
4 - accuracy: 0.8332
Epoch 78/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.402
0 - accuracy: 0.8322
Epoch 79/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.402
3 - accuracy: 0.8330
Epoch 80/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.402
4 - accuracy: 0.8330
Epoch 81/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.402
4 - accuracy: 0.8328
Epoch 82/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.402
2 - accuracy: 0.8333
Epoch 83/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.401
7 - accuracy: 0.8328
Epoch 84/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.402
1 - accuracy: 0.8318
Epoch 85/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.402
2 - accuracy: 0.8335
Epoch 86/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.402
1 - accuracy: 0.8330
Epoch 87/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.402
0 - accuracy: 0.8327
Epoch 88/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.401
4 - accuracy: 0.8332
Epoch 89/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.402
0 - accuracy: 0.8335
Epoch 90/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.401
9 - accuracy: 0.8322
Epoch 91/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.401
8 - accuracy: 0.8343
Epoch 92/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.401
3 - accuracy: 0.8322
```

Epoch 93/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.401  
9 - accuracy: 0.8327  
Epoch 94/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.401  
9 - accuracy: 0.8337  
Epoch 95/500  
6030/6030 [=====] - 1s 223us/sample - loss: 0.401  
8 - accuracy: 0.8333  
Epoch 96/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.401  
9 - accuracy: 0.8333  
Epoch 97/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.401  
6 - accuracy: 0.8323  
Epoch 98/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.401  
7 - accuracy: 0.8337  
Epoch 99/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.401  
7 - accuracy: 0.8330  
Epoch 100/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.401  
8 - accuracy: 0.8330  
Epoch 101/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.401  
4 - accuracy: 0.8343  
Epoch 102/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.401  
8 - accuracy: 0.8337  
Epoch 103/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.401  
6 - accuracy: 0.8333  
Epoch 104/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.401  
3 - accuracy: 0.8328  
Epoch 105/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.401  
1 - accuracy: 0.8333  
Epoch 106/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.401  
5 - accuracy: 0.8337  
Epoch 107/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.401  
5 - accuracy: 0.8320  
Epoch 108/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.401  
6 - accuracy: 0.8337  
Epoch 109/500  
6030/6030 [=====] - ETA: 0s - loss: 0.4024 - accuracy: 0.83 - 1s 190us/sample - loss: 0.4015 - accuracy: 0.8355  
Epoch 110/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.401  
2 - accuracy: 0.8325  
Epoch 111/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.401  
5 - accuracy: 0.8325  
Epoch 112/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.401  
3 - accuracy: 0.8333  
Epoch 113/500

```
6030/6030 [=====] - 1s 194us/sample - loss: 0.401
3 - accuracy: 0.8337
Epoch 114/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.401
2 - accuracy: 0.8322
Epoch 115/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.401
5 - accuracy: 0.8345
Epoch 116/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.401
4 - accuracy: 0.8323
Epoch 117/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.401
1 - accuracy: 0.8338
Epoch 118/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.401
2 - accuracy: 0.8328
Epoch 119/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.400
9 - accuracy: 0.8335
Epoch 120/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.401
1 - accuracy: 0.8335
Epoch 121/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.401
1 - accuracy: 0.8333
Epoch 122/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.401
0 - accuracy: 0.8343
Epoch 123/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.401
0 - accuracy: 0.8332
Epoch 124/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.401
0 - accuracy: 0.8347
Epoch 125/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.401
0 - accuracy: 0.8325
Epoch 126/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.400
7 - accuracy: 0.8335
Epoch 127/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.401
1 - accuracy: 0.8350
Epoch 128/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.400
6 - accuracy: 0.8345
Epoch 129/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.400
9 - accuracy: 0.8348
Epoch 130/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.400
7 - accuracy: 0.8333
Epoch 131/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.401
0 - accuracy: 0.8337
Epoch 132/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.401
0 - accuracy: 0.8343
Epoch 133/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.400
```

```
8 - accuracy: 0.8355
Epoch 134/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.400
7 - accuracy: 0.8342
Epoch 135/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.400
8 - accuracy: 0.8342
Epoch 136/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.400
6 - accuracy: 0.8335
Epoch 137/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.400
6 - accuracy: 0.8348
Epoch 138/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.400
3 - accuracy: 0.8325
Epoch 139/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.400
8 - accuracy: 0.8325
Epoch 140/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.400
6 - accuracy: 0.8348
Epoch 141/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.400
6 - accuracy: 0.8338
Epoch 142/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.400
4 - accuracy: 0.8340
Epoch 143/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.400
6 - accuracy: 0.8343
Epoch 144/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.400
5 - accuracy: 0.8332
Epoch 145/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.400
4 - accuracy: 0.8335
Epoch 146/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.400
5 - accuracy: 0.8328
Epoch 147/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.400
6 - accuracy: 0.8340
Epoch 148/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.400
3 - accuracy: 0.8335
Epoch 149/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.400
2 - accuracy: 0.8342
Epoch 150/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.400
3 - accuracy: 0.8350
Epoch 151/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.399
8 - accuracy: 0.8322
Epoch 152/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.400
2 - accuracy: 0.8333
Epoch 153/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.400
0 - accuracy: 0.8357
```

Epoch 154/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.399  
9 - accuracy: 0.8338  
Epoch 155/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.400  
1 - accuracy: 0.8333  
Epoch 156/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.399  
9 - accuracy: 0.8345  
Epoch 157/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.399  
8 - accuracy: 0.8345  
Epoch 158/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.399  
9 - accuracy: 0.8337  
Epoch 159/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.399  
4 - accuracy: 0.8338  
Epoch 160/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.400  
0 - accuracy: 0.8350  
Epoch 161/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.399  
8 - accuracy: 0.8330  
Epoch 162/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.399  
9 - accuracy: 0.8350  
Epoch 163/500  
6030/6030 [=====] - 1s 211us/sample - loss: 0.399  
5 - accuracy: 0.8348  
Epoch 164/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.399  
7 - accuracy: 0.8332  
Epoch 165/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.399  
3 - accuracy: 0.8343  
Epoch 166/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.399  
4 - accuracy: 0.8328  
Epoch 167/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.399  
4 - accuracy: 0.8343  
Epoch 168/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.399  
5 - accuracy: 0.8343  
Epoch 169/500  
6030/6030 [=====] - 1s 239us/sample - loss: 0.399  
4 - accuracy: 0.8358  
Epoch 170/500  
6030/6030 [=====] - 1s 238us/sample - loss: 0.399  
6 - accuracy: 0.8345  
Epoch 171/500  
6030/6030 [=====] - 1s 237us/sample - loss: 0.399  
1 - accuracy: 0.8338  
Epoch 172/500  
6030/6030 [=====] - 1s 236us/sample - loss: 0.399  
3 - accuracy: 0.8322  
Epoch 173/500  
6030/6030 [=====] - 1s 239us/sample - loss: 0.399  
1 - accuracy: 0.8333  
Epoch 174/500

```
6030/6030 [=====] - 1s 238us/sample - loss: 0.399
0 - accuracy: 0.8358
Epoch 175/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.399
0 - accuracy: 0.8335
Epoch 176/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.398
6 - accuracy: 0.8352
Epoch 177/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.398
4 - accuracy: 0.8330
Epoch 178/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.397
8 - accuracy: 0.8358
Epoch 179/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.398
0 - accuracy: 0.8338
Epoch 180/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.397
8 - accuracy: 0.8353
Epoch 181/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.397
8 - accuracy: 0.8345
Epoch 182/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.397
6 - accuracy: 0.8348
Epoch 183/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.397
4 - accuracy: 0.8342
Epoch 184/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.397
2 - accuracy: 0.8343
Epoch 185/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.396
5 - accuracy: 0.8360
Epoch 186/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.396
7 - accuracy: 0.8347
Epoch 187/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.396
4 - accuracy: 0.8363
Epoch 188/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.396
7 - accuracy: 0.8338
Epoch 189/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
6 - accuracy: 0.8353
Epoch 190/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.396
4 - accuracy: 0.8362
Epoch 191/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.395
8 - accuracy: 0.8367
Epoch 192/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.396
2 - accuracy: 0.8335
Epoch 193/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.395
9 - accuracy: 0.8345
Epoch 194/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.395
```

```
7 - accuracy: 0.8365
Epoch 195/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.395
7 - accuracy: 0.8352
Epoch 196/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.395
8 - accuracy: 0.8355
Epoch 197/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.395
4 - accuracy: 0.8350
Epoch 198/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.395
5 - accuracy: 0.8353
Epoch 199/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.395
4 - accuracy: 0.8345 - 1
Epoch 200/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.394
9 - accuracy: 0.8350
Epoch 201/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.395
1 - accuracy: 0.8370
Epoch 202/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.395
6 - accuracy: 0.8365
Epoch 203/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.395
0 - accuracy: 0.8373
Epoch 204/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.395
2 - accuracy: 0.8368
Epoch 205/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.395
4 - accuracy: 0.8355
Epoch 206/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.394
9 - accuracy: 0.8363
Epoch 207/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.394
5 - accuracy: 0.8368
Epoch 208/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.394
7 - accuracy: 0.8352
Epoch 209/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.395
0 - accuracy: 0.8352
Epoch 210/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.394
4 - accuracy: 0.8355
Epoch 211/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.394
6 - accuracy: 0.8367
Epoch 212/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.394
5 - accuracy: 0.8357
Epoch 213/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.394
1 - accuracy: 0.8363
Epoch 214/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.394
7 - accuracy: 0.8345
```

Epoch 215/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.394  
3 - accuracy: 0.8360  
Epoch 216/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.394  
7 - accuracy: 0.8348  
Epoch 217/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.394  
8 - accuracy: 0.8362  
Epoch 218/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.394  
6 - accuracy: 0.8342  
Epoch 219/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.394  
3 - accuracy: 0.8365  
Epoch 220/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.394  
2 - accuracy: 0.8357  
Epoch 221/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.394  
1 - accuracy: 0.8357  
Epoch 222/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.394  
4 - accuracy: 0.8360  
Epoch 223/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.394  
4 - accuracy: 0.8355  
Epoch 224/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.394  
4 - accuracy: 0.8373  
Epoch 225/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.394  
4 - accuracy: 0.8343  
Epoch 226/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.394  
3 - accuracy: 0.8343  
Epoch 227/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.393  
6 - accuracy: 0.8343  
Epoch 228/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.394  
0 - accuracy: 0.8370  
Epoch 229/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.394  
3 - accuracy: 0.8357  
Epoch 230/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.394  
1 - accuracy: 0.8353  
Epoch 231/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.393  
9 - accuracy: 0.8353  
Epoch 232/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.394  
2 - accuracy: 0.8350  
Epoch 233/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.394  
1 - accuracy: 0.8355  
Epoch 234/500  
6030/6030 [=====] - 1s 214us/sample - loss: 0.393  
8 - accuracy: 0.8360  
Epoch 235/500



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6030/6030 [=====] - 1s 190us/sample - loss: 0.394
0 - accuracy: 0.8368
Epoch 236/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.393
8 - accuracy: 0.8365
Epoch 237/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.393
8 - accuracy: 0.8350
Epoch 238/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.394
0 - accuracy: 0.8357
Epoch 239/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.393
8 - accuracy: 0.8355
Epoch 240/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.394
1 - accuracy: 0.8345
Epoch 241/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.393
3 - accuracy: 0.8365
Epoch 242/500
6030/6030 [=====] - 2s 251us/sample - loss: 0.393
7 - accuracy: 0.8353
Epoch 243/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.393
9 - accuracy: 0.8368
Epoch 244/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.393
8 - accuracy: 0.8352
Epoch 245/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.393
6 - accuracy: 0.8368
Epoch 246/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.393
4 - accuracy: 0.8380
Epoch 247/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.393
4 - accuracy: 0.8370
Epoch 248/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.393
6 - accuracy: 0.8363
Epoch 249/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.393
8 - accuracy: 0.8333
Epoch 250/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.393
5 - accuracy: 0.8365
Epoch 251/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.393
3 - accuracy: 0.8357
Epoch 252/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.393
6 - accuracy: 0.8362
Epoch 253/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.393
5 - accuracy: 0.8350
Epoch 254/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.393
2 - accuracy: 0.8367
Epoch 255/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.393
```

```
4 - accuracy: 0.8360 - loss: 0.4
Epoch 256/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.393
1 - accuracy: 0.8352
Epoch 257/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.393
5 - accuracy: 0.8368
Epoch 258/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.392
8 - accuracy: 0.8362
Epoch 259/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.393
2 - accuracy: 0.8353
Epoch 260/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.393
4 - accuracy: 0.8348
Epoch 261/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.393
2 - accuracy: 0.8371
Epoch 262/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.393
0 - accuracy: 0.8358
Epoch 263/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.392
6 - accuracy: 0.8375
Epoch 264/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.393
3 - accuracy: 0.8375
Epoch 265/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.393
2 - accuracy: 0.8367
Epoch 266/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.393
0 - accuracy: 0.8363
Epoch 267/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.393
3 - accuracy: 0.8362
Epoch 268/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.393
2 - accuracy: 0.8365
Epoch 269/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.392
4 - accuracy: 0.8383
Epoch 270/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.393
0 - accuracy: 0.8363
Epoch 271/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.392
9 - accuracy: 0.8365
Epoch 272/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.392
7 - accuracy: 0.8367
Epoch 273/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.392
8 - accuracy: 0.8371
Epoch 274/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.392
6 - accuracy: 0.8380
Epoch 275/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.392
9 - accuracy: 0.8375
```

Epoch 276/500  
6030/6030 [=====] - 1s 220us/sample - loss: 0.392  
7 - accuracy: 0.8375  
Epoch 277/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.393  
0 - accuracy: 0.8368  
Epoch 278/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.392  
9 - accuracy: 0.8370  
Epoch 279/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.392  
7 - accuracy: 0.8362  
Epoch 280/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.392  
7 - accuracy: 0.8375  
Epoch 281/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.392  
7 - accuracy: 0.8362  
Epoch 282/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.392  
7 - accuracy: 0.8358  
Epoch 283/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.393  
0 - accuracy: 0.8368  
Epoch 284/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.392  
6 - accuracy: 0.8368  
Epoch 285/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.392  
9 - accuracy: 0.8370  
Epoch 286/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.392  
7 - accuracy: 0.8362  
Epoch 287/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.392  
5 - accuracy: 0.8367  
Epoch 288/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.392  
8 - accuracy: 0.8378  
Epoch 289/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.392  
4 - accuracy: 0.8363  
Epoch 290/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.392  
4 - accuracy: 0.8386  
Epoch 291/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.392  
4 - accuracy: 0.8365  
Epoch 292/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.392  
6 - accuracy: 0.8370  
Epoch 293/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.392  
3 - accuracy: 0.8380  
Epoch 294/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.392  
7 - accuracy: 0.8362  
Epoch 295/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.392  
7 - accuracy: 0.8371  
Epoch 296/500

```
6030/6030 [=====] - 1s 185us/sample - loss: 0.392
4 - accuracy: 0.8362
Epoch 297/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.392
8 - accuracy: 0.8358
Epoch 298/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.392
2 - accuracy: 0.8380
Epoch 299/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.392
5 - accuracy: 0.8376
Epoch 300/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.392
4 - accuracy: 0.8375
Epoch 301/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.392
3 - accuracy: 0.8381
Epoch 302/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.392
4 - accuracy: 0.8376
Epoch 303/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.392
4 - accuracy: 0.8385
Epoch 304/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.391
9 - accuracy: 0.8375
Epoch 305/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.392
3 - accuracy: 0.8386
Epoch 306/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.392
0 - accuracy: 0.8383
Epoch 307/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.391
8 - accuracy: 0.8376
Epoch 308/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.392
3 - accuracy: 0.8386
Epoch 309/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.392
4 - accuracy: 0.8371
Epoch 310/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.392
4 - accuracy: 0.8381
Epoch 311/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.392
2 - accuracy: 0.8363
Epoch 312/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.391
6 - accuracy: 0.8370
Epoch 313/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.392
0 - accuracy: 0.8378
Epoch 314/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.392
0 - accuracy: 0.8358
Epoch 315/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.392
1 - accuracy: 0.8380
Epoch 316/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.392
```

```
2 - accuracy: 0.8390
Epoch 317/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.392
3 - accuracy: 0.8388
Epoch 318/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.392
2 - accuracy: 0.8378
Epoch 319/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.392
1 - accuracy: 0.8381
Epoch 320/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.391
9 - accuracy: 0.8367
Epoch 321/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.391
9 - accuracy: 0.8371
Epoch 322/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.392
0 - accuracy: 0.8381
Epoch 323/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.392
1 - accuracy: 0.8390
Epoch 324/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.391
9 - accuracy: 0.8367
Epoch 325/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.392
1 - accuracy: 0.8373
Epoch 326/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.392
0 - accuracy: 0.8367
Epoch 327/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.391
9 - accuracy: 0.8373
Epoch 328/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.391
7 - accuracy: 0.8393
Epoch 329/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.392
1 - accuracy: 0.8362
Epoch 330/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.392
0 - accuracy: 0.8373
Epoch 331/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.391
5 - accuracy: 0.8370
Epoch 332/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.391
9 - accuracy: 0.8381
Epoch 333/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.392
0 - accuracy: 0.8375
Epoch 334/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.391
5 - accuracy: 0.8375
Epoch 335/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.391
5 - accuracy: 0.8378
Epoch 336/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.391
9 - accuracy: 0.8371
```

Epoch 337/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.391  
7 - accuracy: 0.8375  
Epoch 338/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.391  
5 - accuracy: 0.8363  
Epoch 339/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.391  
7 - accuracy: 0.8396  
Epoch 340/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.391  
2 - accuracy: 0.8390  
Epoch 341/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.391  
5 - accuracy: 0.8388  
Epoch 342/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.391  
6 - accuracy: 0.8381  
Epoch 343/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.391  
8 - accuracy: 0.8381  
Epoch 344/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.391  
7 - accuracy: 0.8373  
Epoch 345/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.391  
4 - accuracy: 0.8368  
Epoch 346/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.391  
6 - accuracy: 0.8373  
Epoch 347/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.391  
7 - accuracy: 0.8373  
Epoch 348/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.391  
8 - accuracy: 0.8380  
Epoch 349/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.391  
9 - accuracy: 0.8358  
Epoch 350/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.391  
6 - accuracy: 0.8360  
Epoch 351/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.391  
3 - accuracy: 0.8368  
Epoch 352/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.391  
6 - accuracy: 0.8391  
Epoch 353/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.391  
6 - accuracy: 0.8373  
Epoch 354/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.391  
5 - accuracy: 0.8367  
Epoch 355/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.391  
2 - accuracy: 0.8375  
Epoch 356/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.391  
6 - accuracy: 0.8367  
Epoch 357/500

```
6030/6030 [=====] - 1s 184us/sample - loss: 0.391
7 - accuracy: 0.8381
Epoch 358/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.391
5 - accuracy: 0.8368
Epoch 359/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.391
5 - accuracy: 0.8370
Epoch 360/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.391
7 - accuracy: 0.8368
Epoch 361/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.391
5 - accuracy: 0.8375
Epoch 362/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.391
1 - accuracy: 0.8357
Epoch 363/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.391
0 - accuracy: 0.8370
Epoch 364/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.391
9 - accuracy: 0.8360
Epoch 365/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.391
3 - accuracy: 0.8380
Epoch 366/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.391
4 - accuracy: 0.8376
Epoch 367/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.391
6 - accuracy: 0.8370
Epoch 368/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.391
4 - accuracy: 0.8383
Epoch 369/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.391
8 - accuracy: 0.8375
Epoch 370/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.391
2 - accuracy: 0.8383
Epoch 371/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.391
5 - accuracy: 0.8381
Epoch 372/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.391
3 - accuracy: 0.8388
Epoch 373/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.391
4 - accuracy: 0.8365
Epoch 374/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.391
0 - accuracy: 0.8371
Epoch 375/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.391
3 - accuracy: 0.8376
Epoch 376/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.391
4 - accuracy: 0.8378
Epoch 377/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.391
```

```
1 - accuracy: 0.8376
Epoch 378/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.391
2 - accuracy: 0.8391
Epoch 379/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.391
2 - accuracy: 0.8393
Epoch 380/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.390
7 - accuracy: 0.8383
Epoch 381/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.391
3 - accuracy: 0.8375
Epoch 382/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.391
4 - accuracy: 0.8373
Epoch 383/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.391
5 - accuracy: 0.8381
Epoch 384/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.391
4 - accuracy: 0.8370
Epoch 385/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.391
2 - accuracy: 0.8370
Epoch 386/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.391
5 - accuracy: 0.8378
Epoch 387/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.391
2 - accuracy: 0.8368
Epoch 388/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.391
3 - accuracy: 0.8371
Epoch 389/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.391
3 - accuracy: 0.8376
Epoch 390/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.391
4 - accuracy: 0.8383
Epoch 391/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.391
5 - accuracy: 0.8376
Epoch 392/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.390
6 - accuracy: 0.8373
Epoch 393/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.391
6 - accuracy: 0.8378
Epoch 394/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.391
3 - accuracy: 0.8371
Epoch 395/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.391
2 - accuracy: 0.8378
Epoch 396/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.391
4 - accuracy: 0.8375
Epoch 397/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.391
1 - accuracy: 0.8370
```



Epoch 398/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.391  
4 - accuracy: 0.8376  
Epoch 399/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.391  
3 - accuracy: 0.8395  
Epoch 400/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.391  
2 - accuracy: 0.8370  
Epoch 401/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.390  
8 - accuracy: 0.8386  
Epoch 402/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.391  
5 - accuracy: 0.8385  
Epoch 403/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.391  
5 - accuracy: 0.8371  
Epoch 404/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.391  
4 - accuracy: 0.8376  
Epoch 405/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.391  
2 - accuracy: 0.8395  
Epoch 406/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.391  
3 - accuracy: 0.8383  
Epoch 407/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.391  
2 - accuracy: 0.8380  
Epoch 408/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.391  
2 - accuracy: 0.8376  
Epoch 409/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.391  
1 - accuracy: 0.8375  
Epoch 410/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.390  
8 - accuracy: 0.8375  
Epoch 411/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.391  
1 - accuracy: 0.8380  
Epoch 412/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.390  
1 - accuracy: 0.8398  
Epoch 413/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.391  
5 - accuracy: 0.8371  
Epoch 414/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.391  
0 - accuracy: 0.8373  
Epoch 415/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.391  
3 - accuracy: 0.8383  
Epoch 416/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.391  
1 - accuracy: 0.8381  
Epoch 417/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.391  
1 - accuracy: 0.8386  
Epoch 418/500

```
6030/6030 [=====] - 1s 188us/sample - loss: 0.391
0 - accuracy: 0.8373
Epoch 419/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.391
7 - accuracy: 0.8370
Epoch 420/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.390
5 - accuracy: 0.8358
Epoch 421/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.391
3 - accuracy: 0.8383
Epoch 422/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.391
2 - accuracy: 0.8380
Epoch 423/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.391
4 - accuracy: 0.8380
Epoch 424/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.391
2 - accuracy: 0.8358
Epoch 425/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.390
9 - accuracy: 0.8395
Epoch 426/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.390
9 - accuracy: 0.8367
Epoch 427/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.391
3 - accuracy: 0.8373
Epoch 428/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.391
1 - accuracy: 0.8376
Epoch 429/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.391
0 - accuracy: 0.8371
Epoch 430/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.391
2 - accuracy: 0.8380
Epoch 431/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.391
3 - accuracy: 0.8391
Epoch 432/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.391
2 - accuracy: 0.8391
Epoch 433/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.391
0 - accuracy: 0.8388
Epoch 434/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.390
9 - accuracy: 0.8373
Epoch 435/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.391
2 - accuracy: 0.8375
Epoch 436/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.391
1 - accuracy: 0.8375
Epoch 437/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.391
3 - accuracy: 0.8365
Epoch 438/500
6030/6030 [=====] - 1s 231us/sample - loss: 0.391
```

```
2 - accuracy: 0.8367
Epoch 439/500
6030/6030 [=====] - 2s 249us/sample - loss: 0.391
0 - accuracy: 0.8376
Epoch 440/500
6030/6030 [=====] - 1s 246us/sample - loss: 0.391
0 - accuracy: 0.8380
Epoch 441/500
6030/6030 [=====] - 1s 248us/sample - loss: 0.391
1 - accuracy: 0.8375
Epoch 442/500
6030/6030 [=====] - 2s 252us/sample - loss: 0.391
0 - accuracy: 0.8370
Epoch 443/500
6030/6030 [=====] - 2s 250us/sample - loss: 0.390
9 - accuracy: 0.8383
Epoch 444/500
6030/6030 [=====] - 2s 287us/sample - loss: 0.390
8 - accuracy: 0.8368
Epoch 445/500
6030/6030 [=====] - 2s 259us/sample - loss: 0.391
2 - accuracy: 0.8378
Epoch 446/500
6030/6030 [=====] - 2s 253us/sample - loss: 0.391
4 - accuracy: 0.8373
Epoch 447/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.390
7 - accuracy: 0.8360
Epoch 448/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.391
2 - accuracy: 0.8376
Epoch 449/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.391
2 - accuracy: 0.8385
Epoch 450/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.391
3 - accuracy: 0.8371
Epoch 451/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.391
2 - accuracy: 0.8368
Epoch 452/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.391
0 - accuracy: 0.8365
Epoch 453/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.391
0 - accuracy: 0.8373
Epoch 454/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.391
4 - accuracy: 0.8391
Epoch 455/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.391
1 - accuracy: 0.8388
Epoch 456/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.391
2 - accuracy: 0.8373
Epoch 457/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.391
0 - accuracy: 0.8380
Epoch 458/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.391
0 - accuracy: 0.8376
```

Epoch 459/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.391  
2 - accuracy: 0.8375  
Epoch 460/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.390  
7 - accuracy: 0.8388  
Epoch 461/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.391  
7 - accuracy: 0.8367  
Epoch 462/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.390  
9 - accuracy: 0.8395  
Epoch 463/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.391  
3 - accuracy: 0.8376  
Epoch 464/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.391  
2 - accuracy: 0.8371  
Epoch 465/500  
6030/6030 [=====] - 1s 218us/sample - loss: 0.391  
2 - accuracy: 0.8383  
Epoch 466/500  
6030/6030 [=====] - 1s 217us/sample - loss: 0.391  
1 - accuracy: 0.8383  
Epoch 467/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.391  
1 - accuracy: 0.8371  
Epoch 468/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.391  
3 - accuracy: 0.8373  
Epoch 469/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.391  
1 - accuracy: 0.8388  
Epoch 470/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.390  
8 - accuracy: 0.8380  
Epoch 471/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.390  
8 - accuracy: 0.8370  
Epoch 472/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.391  
0 - accuracy: 0.8357  
Epoch 473/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.391  
0 - accuracy: 0.8370  
Epoch 474/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.391  
0 - accuracy: 0.8375  
Epoch 475/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.391  
0 - accuracy: 0.8365  
Epoch 476/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.391  
6 - accuracy: 0.8371  
Epoch 477/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.390  
5 - accuracy: 0.8381  
Epoch 478/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.391  
1 - accuracy: 0.8378  
Epoch 479/500

```
6030/6030 [=====] - 1s 189us/sample - loss: 0.391
0 - accuracy: 0.8370
Epoch 480/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.391
2 - accuracy: 0.8376
Epoch 481/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.390
7 - accuracy: 0.8401
Epoch 482/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.391
2 - accuracy: 0.8370
Epoch 483/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.390
9 - accuracy: 0.8385
Epoch 484/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.390
8 - accuracy: 0.8367
Epoch 485/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.391
1 - accuracy: 0.8376
Epoch 486/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.391
0 - accuracy: 0.8367
Epoch 487/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.390
8 - accuracy: 0.8375
Epoch 488/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.390
8 - accuracy: 0.8386
Epoch 489/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.391
5 - accuracy: 0.8388
Epoch 490/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.390
8 - accuracy: 0.8370
Epoch 491/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.391
0 - accuracy: 0.8365
Epoch 492/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.390
7 - accuracy: 0.8380
Epoch 493/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.391
2 - accuracy: 0.8381
Epoch 494/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.390
8 - accuracy: 0.8365
Epoch 495/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.391
2 - accuracy: 0.8380
Epoch 496/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.391
1 - accuracy: 0.8365
Epoch 497/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.391
1 - accuracy: 0.8376
Epoch 498/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.391
2 - accuracy: 0.8373
Epoch 499/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.391
```

```
0 - accuracy: 0.8370
Epoch 500/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.391
1 - accuracy: 0.8378
Train on 6030 samples
Epoch 1/500
6030/6030 [=====] - 2s 287us/sample - loss: 0.592
6 - accuracy: 0.7920
Epoch 2/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.449
9 - accuracy: 0.7920
Epoch 3/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.431
5 - accuracy: 0.7920
Epoch 4/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.426
9 - accuracy: 0.7920
Epoch 5/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.423
6 - accuracy: 0.7920
Epoch 6/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.419
8 - accuracy: 0.7920
Epoch 7/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.415
7 - accuracy: 0.7957
Epoch 8/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.411
4 - accuracy: 0.8221
Epoch 9/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.406
5 - accuracy: 0.8245
Epoch 10/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.401
9 - accuracy: 0.8244
Epoch 11/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.397
3 - accuracy: 0.8275
Epoch 12/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.393
0 - accuracy: 0.8240
Epoch 13/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.388
7 - accuracy: 0.8262
Epoch 14/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.385
8 - accuracy: 0.8274
Epoch 15/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.382
6 - accuracy: 0.8342
Epoch 16/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.380
3 - accuracy: 0.8391
Epoch 17/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.377
6 - accuracy: 0.8421
Epoch 18/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.375
5 - accuracy: 0.8448
Epoch 19/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.373
```

```
7 - accuracy: 0.8436
Epoch 20/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.371
7 - accuracy: 0.8461
Epoch 21/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.369
9 - accuracy: 0.8461
Epoch 22/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.368
6 - accuracy: 0.8461
Epoch 23/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.367
4 - accuracy: 0.8474
Epoch 24/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.366
0 - accuracy: 0.8488
Epoch 25/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.365
7 - accuracy: 0.8489
Epoch 26/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.364
3 - accuracy: 0.8489
Epoch 27/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.363
4 - accuracy: 0.8504
Epoch 28/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.362
3 - accuracy: 0.8506
Epoch 29/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.362
0 - accuracy: 0.8509
Epoch 30/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.361
0 - accuracy: 0.8494
Epoch 31/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.360
4 - accuracy: 0.8506
Epoch 32/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.358
9 - accuracy: 0.8541
Epoch 33/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.358
9 - accuracy: 0.8529
Epoch 34/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.357
6 - accuracy: 0.8521
Epoch 35/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.357
0 - accuracy: 0.8541
Epoch 36/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.357
5 - accuracy: 0.8531
Epoch 37/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.356
0 - accuracy: 0.8547
Epoch 38/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.355
1 - accuracy: 0.8521
Epoch 39/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.355
2 - accuracy: 0.8549
```

Epoch 40/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.354  
8 - accuracy: 0.8547  
Epoch 41/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.354  
4 - accuracy: 0.8542  
Epoch 42/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.354  
4 - accuracy: 0.8572  
Epoch 43/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.354  
4 - accuracy: 0.8547  
Epoch 44/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.353  
7 - accuracy: 0.8534  
Epoch 45/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.353  
4 - accuracy: 0.8554  
Epoch 46/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.352  
1 - accuracy: 0.8572  
Epoch 47/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.352  
9 - accuracy: 0.8537  
Epoch 48/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.351  
6 - accuracy: 0.8559  
Epoch 49/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.351  
3 - accuracy: 0.8574  
Epoch 50/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.351  
3 - accuracy: 0.8546  
Epoch 51/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.351  
3 - accuracy: 0.8580  
Epoch 52/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.350  
1 - accuracy: 0.8602  
Epoch 53/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.351  
0 - accuracy: 0.8575  
Epoch 54/500  
6030/6030 [=====] - 1s 207us/sample - loss: 0.350  
2 - accuracy: 0.8561  
Epoch 55/500  
6030/6030 [=====] - 1s 215us/sample - loss: 0.349  
5 - accuracy: 0.8557  
Epoch 56/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.349  
1 - accuracy: 0.8552  
Epoch 57/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.348  
5 - accuracy: 0.8587  
Epoch 58/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.348  
8 - accuracy: 0.8547  
Epoch 59/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.348  
5 - accuracy: 0.8566  
Epoch 60/500



```
6030/6030 [=====] - 1s 216us/sample - loss: 0.348
4 - accuracy: 0.8546
Epoch 61/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.348
6 - accuracy: 0.8557
Epoch 62/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.346
9 - accuracy: 0.8594
Epoch 63/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.348
0 - accuracy: 0.8582
Epoch 64/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.347
3 - accuracy: 0.8579
Epoch 65/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.346
8 - accuracy: 0.8585
Epoch 66/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.347
7 - accuracy: 0.8574
Epoch 67/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.346
8 - accuracy: 0.8561
Epoch 68/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.347
3 - accuracy: 0.8575
Epoch 69/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.346
8 - accuracy: 0.8559
Epoch 70/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.346
4 - accuracy: 0.8575
Epoch 71/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.346
1 - accuracy: 0.8585
Epoch 72/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.346
3 - accuracy: 0.8569
Epoch 73/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.346
4 - accuracy: 0.8577
Epoch 74/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.346
3 - accuracy: 0.8582
Epoch 75/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.346
1 - accuracy: 0.8575
Epoch 76/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.345
7 - accuracy: 0.8570
Epoch 77/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.345
9 - accuracy: 0.8577
Epoch 78/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.345
9 - accuracy: 0.8566
Epoch 79/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.345
8 - accuracy: 0.8570
Epoch 80/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.346
```

```
0 - accuracy: 0.8577
Epoch 81/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.345
4 - accuracy: 0.8561
Epoch 82/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.344
9 - accuracy: 0.8592
Epoch 83/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.345
8 - accuracy: 0.8562
Epoch 84/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.345
1 - accuracy: 0.8554
Epoch 85/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.345
4 - accuracy: 0.8554
Epoch 86/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.345
6 - accuracy: 0.8552
Epoch 87/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.345
1 - accuracy: 0.8566
Epoch 88/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.344
9 - accuracy: 0.8597
Epoch 89/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.344
1 - accuracy: 0.8567
Epoch 90/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.345
0 - accuracy: 0.8575
Epoch 91/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.344
3 - accuracy: 0.8579
Epoch 92/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.343
9 - accuracy: 0.8589
Epoch 93/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.343
5 - accuracy: 0.8567
Epoch 94/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.343
3 - accuracy: 0.8584
Epoch 95/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.344
1 - accuracy: 0.8589
Epoch 96/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.344
4 - accuracy: 0.8592
Epoch 97/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.344
2 - accuracy: 0.8585
Epoch 98/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.344
3 - accuracy: 0.8594
Epoch 99/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.344
2 - accuracy: 0.8579
Epoch 100/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.344
2 - accuracy: 0.8589
```

Epoch 101/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.343  
8 - accuracy: 0.8566  
Epoch 102/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.343  
5 - accuracy: 0.8585  
Epoch 103/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.344  
3 - accuracy: 0.8587  
Epoch 104/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.344  
1 - accuracy: 0.8574  
Epoch 105/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.344  
0 - accuracy: 0.8574  
Epoch 106/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.343  
3 - accuracy: 0.8577  
Epoch 107/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.344  
5 - accuracy: 0.8562  
Epoch 108/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.343  
8 - accuracy: 0.8584  
Epoch 109/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.343  
5 - accuracy: 0.8602  
Epoch 110/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.344  
1 - accuracy: 0.8600  
Epoch 111/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.344  
1 - accuracy: 0.8562  
Epoch 112/500  
6030/6030 [=====] - 1s 230us/sample - loss: 0.343  
5 - accuracy: 0.8575  
Epoch 113/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.343  
7 - accuracy: 0.8587  
Epoch 114/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.343  
9 - accuracy: 0.8584  
Epoch 115/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.344  
1 - accuracy: 0.8567  
Epoch 116/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.342  
7 - accuracy: 0.8579  
Epoch 117/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.343  
6 - accuracy: 0.8567  
Epoch 118/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.343  
5 - accuracy: 0.8562  
Epoch 119/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.343  
2 - accuracy: 0.8600  
Epoch 120/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.343  
5 - accuracy: 0.8584  
Epoch 121/500

```
6030/6030 [=====] - 1s 189us/sample - loss: 0.343
4 - accuracy: 0.8589
Epoch 122/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.343
4 - accuracy: 0.8569
Epoch 123/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.343
9 - accuracy: 0.8567
Epoch 124/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.343
2 - accuracy: 0.8600
Epoch 125/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.343
6 - accuracy: 0.8579
Epoch 126/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.343
2 - accuracy: 0.8577
Epoch 127/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.343
5 - accuracy: 0.8600
Epoch 128/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.342
7 - accuracy: 0.8572
Epoch 129/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.342
3 - accuracy: 0.8577
Epoch 130/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.343
6 - accuracy: 0.8564
Epoch 131/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.343
1 - accuracy: 0.8570
Epoch 132/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.342
0 - accuracy: 0.8594
Epoch 133/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.343
3 - accuracy: 0.8592
Epoch 134/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.342
3 - accuracy: 0.8605
Epoch 135/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.342
6 - accuracy: 0.8575
Epoch 136/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.342
4 - accuracy: 0.8570
Epoch 137/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.343
1 - accuracy: 0.8597
Epoch 138/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.343
0 - accuracy: 0.8579
Epoch 139/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.343
0 - accuracy: 0.8577
Epoch 140/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.341
7 - accuracy: 0.8599
Epoch 141/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.342
```

```
9 - accuracy: 0.8575
Epoch 142/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.342
8 - accuracy: 0.8579
Epoch 143/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.343
1 - accuracy: 0.8605
Epoch 144/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.342
1 - accuracy: 0.8595
Epoch 145/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.342
8 - accuracy: 0.8582
Epoch 146/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.343
2 - accuracy: 0.8604
Epoch 147/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.342
7 - accuracy: 0.8585
Epoch 148/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.342
8 - accuracy: 0.8585
Epoch 149/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.342
4 - accuracy: 0.8574
Epoch 150/500
6030/6030 [=====] - 1s 243us/sample - loss: 0.343
0 - accuracy: 0.8592
Epoch 151/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.342
7 - accuracy: 0.8579
Epoch 152/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.343
1 - accuracy: 0.8597
Epoch 153/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.341
6 - accuracy: 0.8595
Epoch 154/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.342
8 - accuracy: 0.8592
Epoch 155/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.343
3 - accuracy: 0.8599
Epoch 156/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.342
8 - accuracy: 0.8574
Epoch 157/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.342
2 - accuracy: 0.8609
Epoch 158/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.342
5 - accuracy: 0.8584
Epoch 159/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.343
0 - accuracy: 0.8594
Epoch 160/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.341
0 - accuracy: 0.8614
Epoch 161/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.342
2 - accuracy: 0.8557
```

Epoch 162/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.342  
3 - accuracy: 0.8582  
Epoch 163/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.342  
5 - accuracy: 0.8580  
Epoch 164/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.341  
5 - accuracy: 0.8622  
Epoch 165/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.343  
0 - accuracy: 0.8605  
Epoch 166/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.342  
3 - accuracy: 0.8604  
Epoch 167/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.342  
4 - accuracy: 0.8595  
Epoch 168/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.342  
8 - accuracy: 0.8587  
Epoch 169/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.342  
4 - accuracy: 0.8602  
Epoch 170/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.342  
3 - accuracy: 0.8594  
Epoch 171/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.341  
7 - accuracy: 0.8595  
Epoch 172/500  
6030/6030 [=====] - 1s 233us/sample - loss: 0.342  
2 - accuracy: 0.8579  
Epoch 173/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.341  
7 - accuracy: 0.8597  
Epoch 174/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.342  
5 - accuracy: 0.8585  
Epoch 175/500  
6030/6030 [=====] - 1s 226us/sample - loss: 0.342  
1 - accuracy: 0.8599  
Epoch 176/500  
6030/6030 [=====] - 2s 259us/sample - loss: 0.341  
7 - accuracy: 0.8622  
Epoch 177/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.342  
0 - accuracy: 0.8595  
Epoch 178/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.342  
1 - accuracy: 0.8575  
Epoch 179/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.342  
6 - accuracy: 0.8595  
Epoch 180/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.341  
7 - accuracy: 0.8592  
Epoch 181/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.342  
1 - accuracy: 0.8614  
Epoch 182/500

```
6030/6030 [=====] - 1s 199us/sample - loss: 0.341
7 - accuracy: 0.8604
Epoch 183/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.342
7 - accuracy: 0.8575
Epoch 184/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.342
0 - accuracy: 0.8592
Epoch 185/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.342
0 - accuracy: 0.8567
Epoch 186/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.342
1 - accuracy: 0.8594
Epoch 187/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.341
2 - accuracy: 0.8610
Epoch 188/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.341
8 - accuracy: 0.8589
Epoch 189/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.342
1 - accuracy: 0.8597
Epoch 190/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.341
7 - accuracy: 0.8585
Epoch 191/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.342
0 - accuracy: 0.8587
Epoch 192/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.342
5 - accuracy: 0.8587
Epoch 193/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.342
0 - accuracy: 0.8605
Epoch 194/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.342
5 - accuracy: 0.8584
Epoch 195/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.341
3 - accuracy: 0.8597
Epoch 196/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.342
1 - accuracy: 0.8605
Epoch 197/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.341
9 - accuracy: 0.8587
Epoch 198/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.342
0 - accuracy: 0.8589
Epoch 199/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.342
7 - accuracy: 0.8566
Epoch 200/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.342
6 - accuracy: 0.8594
Epoch 201/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.342
1 - accuracy: 0.8604
Epoch 202/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.341
```

```
8 - accuracy: 0.8604
Epoch 203/500
6030/6030 [=====] - 1s 236us/sample - loss: 0.342
0 - accuracy: 0.8584
Epoch 204/500
6030/6030 [=====] - 1s 243us/sample - loss: 0.341
8 - accuracy: 0.8604
Epoch 205/500
6030/6030 [=====] - 2s 250us/sample - loss: 0.341
2 - accuracy: 0.8587
Epoch 206/500
6030/6030 [=====] - 1s 244us/sample - loss: 0.341
9 - accuracy: 0.8575
Epoch 207/500
6030/6030 [=====] - 1s 244us/sample - loss: 0.341
6 - accuracy: 0.8597
Epoch 208/500
6030/6030 [=====] - 1s 243us/sample - loss: 0.341
4 - accuracy: 0.8602
Epoch 209/500
6030/6030 [=====] - 1s 244us/sample - loss: 0.341
8 - accuracy: 0.8574
Epoch 210/500
6030/6030 [=====] - 1s 248us/sample - loss: 0.342
1 - accuracy: 0.8575
Epoch 211/500
6030/6030 [=====] - 2s 255us/sample - loss: 0.342
2 - accuracy: 0.8595
Epoch 212/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.341
7 - accuracy: 0.8579
Epoch 213/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.341
5 - accuracy: 0.8609
Epoch 214/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.342
7 - accuracy: 0.8597
Epoch 215/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.342
1 - accuracy: 0.8570
Epoch 216/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.342
0 - accuracy: 0.8582
Epoch 217/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.341
7 - accuracy: 0.8594
Epoch 218/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.342
4 - accuracy: 0.8574
Epoch 219/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.341
8 - accuracy: 0.8602
Epoch 220/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.342
0 - accuracy: 0.8584
Epoch 221/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.341
8 - accuracy: 0.8584
Epoch 222/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.341
9 - accuracy: 0.8595
```



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Epoch 223/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.341
8 - accuracy: 0.8619 - loss: 0
Epoch 224/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.341
8 - accuracy: 0.8577
Epoch 225/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.341
8 - accuracy: 0.8589
Epoch 226/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.341
8 - accuracy: 0.8585
Epoch 227/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.341
9 - accuracy: 0.8577
Epoch 228/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.341
6 - accuracy: 0.8597
Epoch 229/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.341
8 - accuracy: 0.8590
Epoch 230/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.342
3 - accuracy: 0.8604
Epoch 231/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.341
3 - accuracy: 0.8579
Epoch 232/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.342
1 - accuracy: 0.8594
Epoch 233/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.341
4 - accuracy: 0.8587
Epoch 234/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.341
7 - accuracy: 0.8592
Epoch 235/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.340
7 - accuracy: 0.8615
Epoch 236/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.341
9 - accuracy: 0.8589
Epoch 237/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.341
4 - accuracy: 0.8597
Epoch 238/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.341
4 - accuracy: 0.8597
Epoch 239/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.340
6 - accuracy: 0.8594
Epoch 240/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.341
2 - accuracy: 0.8609
Epoch 241/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.342
0 - accuracy: 0.8594
Epoch 242/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.341
5 - accuracy: 0.8604
Epoch 243/500
```

```
6030/6030 [=====] - 1s 187us/sample - loss: 0.341
1 - accuracy: 0.8609
Epoch 244/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.342
2 - accuracy: 0.8590
Epoch 245/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.341
9 - accuracy: 0.8597
Epoch 246/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.341
7 - accuracy: 0.8575
Epoch 247/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.341
7 - accuracy: 0.8590
Epoch 248/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.341
5 - accuracy: 0.8605
Epoch 249/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.341
4 - accuracy: 0.8579
Epoch 250/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.341
3 - accuracy: 0.8610
Epoch 251/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.341
7 - accuracy: 0.8599
Epoch 252/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.341
6 - accuracy: 0.8585
Epoch 253/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.341
5 - accuracy: 0.8597
Epoch 254/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.341
5 - accuracy: 0.8605
Epoch 255/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.341
2 - accuracy: 0.8612
Epoch 256/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.341
0 - accuracy: 0.8599
Epoch 257/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.341
1 - accuracy: 0.8602
Epoch 258/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.341
5 - accuracy: 0.8615
Epoch 259/500
6030/6030 [=====] - 2s 258us/sample - loss: 0.341
7 - accuracy: 0.8599
Epoch 260/500
6030/6030 [=====] - 2s 255us/sample - loss: 0.341
4 - accuracy: 0.8570
Epoch 261/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.341
0 - accuracy: 0.8582
Epoch 262/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.341
2 - accuracy: 0.8599
Epoch 263/500
6030/6030 [=====] - 2s 327us/sample - loss: 0.341
```

```
6 - accuracy: 0.8615
Epoch 264/500
6030/6030 [=====] - 2s 309us/sample - loss: 0.341
4 - accuracy: 0.8592
Epoch 265/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.341
5 - accuracy: 0.8592
Epoch 266/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.340
9 - accuracy: 0.8599
Epoch 267/500
6030/6030 [=====] - 2s 288us/sample - loss: 0.341
4 - accuracy: 0.8579
Epoch 268/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.341
2 - accuracy: 0.8609
Epoch 269/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.341
6 - accuracy: 0.8575
Epoch 270/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.341
5 - accuracy: 0.8574
Epoch 271/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.341
3 - accuracy: 0.8599
Epoch 272/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.341
4 - accuracy: 0.8622 - loss: 0.3447 - accu
Epoch 273/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.341
6 - accuracy: 0.8585
Epoch 274/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.341
3 - accuracy: 0.8612
Epoch 275/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.341
5 - accuracy: 0.8595
Epoch 276/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.341
0 - accuracy: 0.8575
Epoch 277/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.341
4 - accuracy: 0.8572
Epoch 278/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.340
9 - accuracy: 0.8602
Epoch 279/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.340
8 - accuracy: 0.8615
Epoch 280/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.341
0 - accuracy: 0.8617
Epoch 281/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.340
8 - accuracy: 0.8590
Epoch 282/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.341
1 - accuracy: 0.8589
Epoch 283/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.341
0 - accuracy: 0.8590
```

Epoch 284/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.341  
1 - accuracy: 0.8609  
Epoch 285/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.341  
3 - accuracy: 0.8600  
Epoch 286/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.341  
1 - accuracy: 0.8585  
Epoch 287/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.342  
0 - accuracy: 0.8584  
Epoch 288/500  
6030/6030 [=====] - 2s 265us/sample - loss: 0.340  
6 - accuracy: 0.8607  
Epoch 289/500  
6030/6030 [=====] - 2s 256us/sample - loss: 0.340  
7 - accuracy: 0.8597  
Epoch 290/500  
6030/6030 [=====] - 1s 242us/sample - loss: 0.341  
2 - accuracy: 0.8579  
Epoch 291/500  
6030/6030 [=====] - 1s 244us/sample - loss: 0.341  
1 - accuracy: 0.8589  
Epoch 292/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.341  
7 - accuracy: 0.8587  
Epoch 293/500  
6030/6030 [=====] - 2s 271us/sample - loss: 0.341  
1 - accuracy: 0.8619  
Epoch 294/500  
6030/6030 [=====] - 1s 234us/sample - loss: 0.341  
3 - accuracy: 0.8599  
Epoch 295/500  
6030/6030 [=====] - 2s 335us/sample - loss: 0.342  
0 - accuracy: 0.8602  
Epoch 296/500  
6030/6030 [=====] - 1s 221us/sample - loss: 0.341  
2 - accuracy: 0.8614  
Epoch 297/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.341  
4 - accuracy: 0.8599  
Epoch 298/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.341  
2 - accuracy: 0.8584  
Epoch 299/500  
6030/6030 [=====] - 2s 282us/sample - loss: 0.341  
8 - accuracy: 0.8569  
Epoch 300/500  
6030/6030 [=====] - 1s 230us/sample - loss: 0.341  
3 - accuracy: 0.8597  
Epoch 301/500  
6030/6030 [=====] - 2s 263us/sample - loss: 0.341  
0 - accuracy: 0.8577  
Epoch 302/500  
6030/6030 [=====] - 1s 225us/sample - loss: 0.340  
8 - accuracy: 0.8595  
Epoch 303/500  
6030/6030 [=====] - 1s 239us/sample - loss: 0.341  
2 - accuracy: 0.8610  
Epoch 304/500

```
6030/6030 [=====] - 1s 232us/sample - loss: 0.341
4 - accuracy: 0.8595
Epoch 305/500
6030/6030 [=====] - 2s 293us/sample - loss: 0.341
7 - accuracy: 0.8590
Epoch 306/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.340
8 - accuracy: 0.8595
Epoch 307/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.341
1 - accuracy: 0.8589
Epoch 308/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.341
3 - accuracy: 0.8589
Epoch 309/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.340
7 - accuracy: 0.8589
Epoch 310/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.341
3 - accuracy: 0.8579
Epoch 311/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.341
5 - accuracy: 0.8595
Epoch 312/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.340
9 - accuracy: 0.8609
Epoch 313/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.341
6 - accuracy: 0.8600
Epoch 314/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.341
3 - accuracy: 0.8574
Epoch 315/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.340
9 - accuracy: 0.8592
Epoch 316/500
6030/6030 [=====] - 2s 267us/sample - loss: 0.341
9 - accuracy: 0.8594
Epoch 317/500
6030/6030 [=====] - 2s 283us/sample - loss: 0.341
5 - accuracy: 0.8605
Epoch 318/500
6030/6030 [=====] - 2s 262us/sample - loss: 0.340
8 - accuracy: 0.8597
Epoch 319/500
6030/6030 [=====] - 2s 293us/sample - loss: 0.341
0 - accuracy: 0.8577
Epoch 320/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.341
9 - accuracy: 0.8600
Epoch 321/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.341
4 - accuracy: 0.8589
Epoch 322/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.341
5 - accuracy: 0.8592
Epoch 323/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.340
6 - accuracy: 0.8590
Epoch 324/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.340
```

```
5 - accuracy: 0.8592
Epoch 325/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.340
7 - accuracy: 0.8584
Epoch 326/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.341
1 - accuracy: 0.8587
Epoch 327/500
6030/6030 [=====] - 1s 234us/sample - loss: 0.341
6 - accuracy: 0.8585
Epoch 328/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.340
6 - accuracy: 0.8605
Epoch 329/500
6030/6030 [=====] - 1s 231us/sample - loss: 0.341
0 - accuracy: 0.8582
Epoch 330/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.341
4 - accuracy: 0.8605
Epoch 331/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.341
3 - accuracy: 0.8592
Epoch 332/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.341
4 - accuracy: 0.8607
Epoch 333/500
6030/6030 [=====] - 1s 244us/sample - loss: 0.341
0 - accuracy: 0.8594
Epoch 334/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.341
4 - accuracy: 0.8590
Epoch 335/500
6030/6030 [=====] - 1s 232us/sample - loss: 0.340
9 - accuracy: 0.8585
Epoch 336/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.341
9 - accuracy: 0.8612
Epoch 337/500
6030/6030 [=====] - 1s 232us/sample - loss: 0.341
5 - accuracy: 0.8569
Epoch 338/500
6030/6030 [=====] - 1s 240us/sample - loss: 0.340
7 - accuracy: 0.8615
Epoch 339/500
6030/6030 [=====] - 1s 239us/sample - loss: 0.341
0 - accuracy: 0.8595
Epoch 340/500
6030/6030 [=====] - 2s 264us/sample - loss: 0.341
1 - accuracy: 0.8604
Epoch 341/500
6030/6030 [=====] - 2s 260us/sample - loss: 0.341
4 - accuracy: 0.8595
Epoch 342/500
6030/6030 [=====] - 1s 246us/sample - loss: 0.340
2 - accuracy: 0.8610
Epoch 343/500
6030/6030 [=====] - 1s 234us/sample - loss: 0.341
7 - accuracy: 0.8599
Epoch 344/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.341
2 - accuracy: 0.8577
```

Epoch 345/500  
6030/6030 [=====] - 1s 219us/sample - loss: 0.341  
8 - accuracy: 0.8590  
Epoch 346/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.340  
8 - accuracy: 0.8599  
Epoch 347/500  
6030/6030 [=====] - 1s 228us/sample - loss: 0.341  
2 - accuracy: 0.8572  
Epoch 348/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.341  
4 - accuracy: 0.8604  
Epoch 349/500  
6030/6030 [=====] - 1s 218us/sample - loss: 0.341  
2 - accuracy: 0.8567  
Epoch 350/500  
6030/6030 [=====] - 1s 212us/sample - loss: 0.341  
4 - accuracy: 0.8572  
Epoch 351/500  
6030/6030 [=====] - 1s 229us/sample - loss: 0.341  
6 - accuracy: 0.8600  
Epoch 352/500  
6030/6030 [=====] - 1s 235us/sample - loss: 0.341  
2 - accuracy: 0.8582  
Epoch 353/500  
6030/6030 [=====] - 1s 225us/sample - loss: 0.341  
5 - accuracy: 0.8584  
Epoch 354/500  
6030/6030 [=====] - 1s 224us/sample - loss: 0.341  
5 - accuracy: 0.8604  
Epoch 355/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.341  
4 - accuracy: 0.8604  
Epoch 356/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.340  
6 - accuracy: 0.8609  
Epoch 357/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.340  
8 - accuracy: 0.8592  
Epoch 358/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.340  
6 - accuracy: 0.8587  
Epoch 359/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.341  
4 - accuracy: 0.8615  
Epoch 360/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.341  
0 - accuracy: 0.8577  
Epoch 361/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.340  
6 - accuracy: 0.8607  
Epoch 362/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.341  
6 - accuracy: 0.8589  
Epoch 363/500  
6030/6030 [=====] - 1s 219us/sample - loss: 0.341  
0 - accuracy: 0.8587  
Epoch 364/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.340  
9 - accuracy: 0.8587  
Epoch 365/500

```
6030/6030 [=====] - 1s 183us/sample - loss: 0.340
9 - accuracy: 0.8584
Epoch 366/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.341
2 - accuracy: 0.8610
Epoch 367/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.340
9 - accuracy: 0.8604
Epoch 368/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.340
9 - accuracy: 0.8622
Epoch 369/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.340
7 - accuracy: 0.8604
Epoch 370/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.341
8 - accuracy: 0.8587
Epoch 371/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.340
9 - accuracy: 0.8602
Epoch 372/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.341
4 - accuracy: 0.8602
Epoch 373/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.340
9 - accuracy: 0.8582
Epoch 374/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.339
9 - accuracy: 0.8604
Epoch 375/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.341
0 - accuracy: 0.8584
Epoch 376/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.341
3 - accuracy: 0.8589
Epoch 377/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.341
3 - accuracy: 0.8585
Epoch 378/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.340
8 - accuracy: 0.8567
Epoch 379/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.340
5 - accuracy: 0.8604
Epoch 380/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.341
2 - accuracy: 0.8620
Epoch 381/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.341
3 - accuracy: 0.8584
Epoch 382/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.341
0 - accuracy: 0.8590
Epoch 383/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.341
8 - accuracy: 0.8609
Epoch 384/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.341
4 - accuracy: 0.8595
Epoch 385/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.341
```



```
1 - accuracy: 0.8604
Epoch 386/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.341
3 - accuracy: 0.8605
Epoch 387/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.341
0 - accuracy: 0.8569
Epoch 388/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.341
0 - accuracy: 0.8584
Epoch 389/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.340
8 - accuracy: 0.8559
Epoch 390/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.340
7 - accuracy: 0.8570
Epoch 391/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.341
3 - accuracy: 0.8600
Epoch 392/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.340
7 - accuracy: 0.8575
Epoch 393/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.341
3 - accuracy: 0.8595
Epoch 394/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.341
1 - accuracy: 0.8592
Epoch 395/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.341
6 - accuracy: 0.8599
Epoch 396/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.340
9 - accuracy: 0.8587
Epoch 397/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.341
3 - accuracy: 0.8574
Epoch 398/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.341
3 - accuracy: 0.8597
Epoch 399/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.340
5 - accuracy: 0.8589
Epoch 400/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.341
4 - accuracy: 0.8594
Epoch 401/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.340
5 - accuracy: 0.8587
Epoch 402/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.340
6 - accuracy: 0.8602
Epoch 403/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.340
8 - accuracy: 0.8587
Epoch 404/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.340
4 - accuracy: 0.8602
Epoch 405/500
6030/6030 [=====] - ETA: 0s - loss: 0.3401 - accu
racy: 0.85 - 1s 190us/sample - loss: 0.3414 - accuracy: 0.8584
```

Epoch 406/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.340  
6 - accuracy: 0.8587  
Epoch 407/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.341  
2 - accuracy: 0.8600  
Epoch 408/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.341  
2 - accuracy: 0.8604  
Epoch 409/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.341  
0 - accuracy: 0.8594  
Epoch 410/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.341  
3 - accuracy: 0.8599  
Epoch 411/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.340  
4 - accuracy: 0.8577  
Epoch 412/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.341  
1 - accuracy: 0.8595  
Epoch 413/500  
6030/6030 [=====] - ETA: 0s - loss: 0.3437 - accuracy: 0.85 - 1s 192us/sample - loss: 0.3409 - accuracy: 0.8577  
Epoch 414/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.340  
4 - accuracy: 0.8585  
Epoch 415/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.341  
2 - accuracy: 0.8605  
Epoch 416/500  
6030/6030 [=====] - 1s 215us/sample - loss: 0.341  
4 - accuracy: 0.8592  
Epoch 417/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.341  
2 - accuracy: 0.8602  
Epoch 418/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.340  
9 - accuracy: 0.8592  
Epoch 419/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.341  
1 - accuracy: 0.8590  
Epoch 420/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.340  
5 - accuracy: 0.8592  
Epoch 421/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.340  
4 - accuracy: 0.8600  
Epoch 422/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.340  
4 - accuracy: 0.8607  
Epoch 423/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.339  
6 - accuracy: 0.8580  
Epoch 424/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.340  
9 - accuracy: 0.8615  
Epoch 425/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.341  
2 - accuracy: 0.8604  
Epoch 426/500

```
6030/6030 [=====] - 1s 182us/sample - loss: 0.340
4 - accuracy: 0.8609
Epoch 427/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.341
1 - accuracy: 0.8619
Epoch 428/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.341
5 - accuracy: 0.8579
Epoch 429/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.340
4 - accuracy: 0.8589
Epoch 430/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.341
2 - accuracy: 0.8597
Epoch 431/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.340
2 - accuracy: 0.8614
Epoch 432/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.340
6 - accuracy: 0.8577
Epoch 433/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.341
0 - accuracy: 0.8607
Epoch 434/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.340
5 - accuracy: 0.8637
Epoch 435/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.341
1 - accuracy: 0.8585
Epoch 436/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.340
9 - accuracy: 0.8584
Epoch 437/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.340
4 - accuracy: 0.8609
Epoch 438/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.340
4 - accuracy: 0.8587
Epoch 439/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.340
4 - accuracy: 0.8605
Epoch 440/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.341
1 - accuracy: 0.8592
Epoch 441/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.340
1 - accuracy: 0.8579
Epoch 442/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.340
8 - accuracy: 0.8582
Epoch 443/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.341
2 - accuracy: 0.8617
Epoch 444/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.340
6 - accuracy: 0.8570
Epoch 445/500
6030/6030 [=====] - 2s 262us/sample - loss: 0.340
9 - accuracy: 0.8589
Epoch 446/500
6030/6030 [=====] - 2s 261us/sample - loss: 0.341
```

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1 - accuracy: 0.8595
Epoch 447/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.340
9 - accuracy: 0.8605
Epoch 448/500
6030/6030 [=====] - 1s 224us/sample - loss: 0.340
6 - accuracy: 0.8609
Epoch 449/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.340
6 - accuracy: 0.8590
Epoch 450/500
6030/6030 [=====] - 1s 240us/sample - loss: 0.340
8 - accuracy: 0.8599
Epoch 451/500
6030/6030 [=====] - 1s 234us/sample - loss: 0.340
5 - accuracy: 0.8594
Epoch 452/500
6030/6030 [=====] - 2s 249us/sample - loss: 0.341
2 - accuracy: 0.8590
Epoch 453/500
6030/6030 [=====] - 2s 263us/sample - loss: 0.341
2 - accuracy: 0.8587 - loss: - ETA: 0s - loss: 0.3
Epoch 454/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.340
1 - accuracy: 0.8592
Epoch 455/500
6030/6030 [=====] - 1s 233us/sample - loss: 0.341
3 - accuracy: 0.8584
Epoch 456/500
6030/6030 [=====] - 1s 239us/sample - loss: 0.341
1 - accuracy: 0.8604
Epoch 457/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.340
4 - accuracy: 0.8599
Epoch 458/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.340
8 - accuracy: 0.8595
Epoch 459/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.340
6 - accuracy: 0.8615
Epoch 460/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.340
9 - accuracy: 0.8587
Epoch 461/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.341
1 - accuracy: 0.8595
Epoch 462/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.341
1 - accuracy: 0.8590
Epoch 463/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.340
6 - accuracy: 0.8625
Epoch 464/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.341
6 - accuracy: 0.8590
Epoch 465/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.340
8 - accuracy: 0.8627
Epoch 466/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.340
5 - accuracy: 0.8619
```

Epoch 467/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.341  
0 - accuracy: 0.8587  
Epoch 468/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.340  
9 - accuracy: 0.8584  
Epoch 469/500  
6030/6030 [=====] - 1s 213us/sample - loss: 0.340  
8 - accuracy: 0.8602  
Epoch 470/500  
6030/6030 [=====] - 1s 239us/sample - loss: 0.341  
0 - accuracy: 0.8604  
Epoch 471/500  
6030/6030 [=====] - 2s 260us/sample - loss: 0.340  
6 - accuracy: 0.8570  
Epoch 472/500  
6030/6030 [=====] - 2s 274us/sample - loss: 0.341  
3 - accuracy: 0.8589  
Epoch 473/500  
6030/6030 [=====] - 1s 211us/sample - loss: 0.340  
7 - accuracy: 0.8600  
Epoch 474/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.340  
8 - accuracy: 0.8589  
Epoch 475/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.340  
4 - accuracy: 0.8592  
Epoch 476/500  
6030/6030 [=====] - 1s 207us/sample - loss: 0.341  
2 - accuracy: 0.8587  
Epoch 477/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.340  
8 - accuracy: 0.8594  
Epoch 478/500  
6030/6030 [=====] - 1s 211us/sample - loss: 0.340  
4 - accuracy: 0.8595  
Epoch 479/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.340  
3 - accuracy: 0.8610  
Epoch 480/500  
6030/6030 [=====] - 1s 214us/sample - loss: 0.340  
9 - accuracy: 0.8604  
Epoch 481/500  
6030/6030 [=====] - 1s 207us/sample - loss: 0.340  
8 - accuracy: 0.8585  
Epoch 482/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.340  
9 - accuracy: 0.8597  
Epoch 483/500  
6030/6030 [=====] - 1s 237us/sample - loss: 0.340  
4 - accuracy: 0.8600  
Epoch 484/500  
6030/6030 [=====] - 1s 239us/sample - loss: 0.341  
1 - accuracy: 0.8580  
Epoch 485/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.341  
2 - accuracy: 0.8575  
Epoch 486/500  
6030/6030 [=====] - 1s 246us/sample - loss: 0.340  
9 - accuracy: 0.8585  
Epoch 487/500

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6030/6030 [=====] - 1s 243us/sample - loss: 0.341
3 - accuracy: 0.8599
Epoch 488/500
6030/6030 [=====] - 1s 234us/sample - loss: 0.340
5 - accuracy: 0.8599
Epoch 489/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.340
7 - accuracy: 0.8605
Epoch 490/500
6030/6030 [=====] - 2s 263us/sample - loss: 0.341
2 - accuracy: 0.8575
Epoch 491/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.341
0 - accuracy: 0.8585
Epoch 492/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.340
6 - accuracy: 0.8600
Epoch 493/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.340
4 - accuracy: 0.8590
Epoch 494/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.340
7 - accuracy: 0.8589
Epoch 495/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.340
5 - accuracy: 0.8605
Epoch 496/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.341
1 - accuracy: 0.8587
Epoch 497/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.340
7 - accuracy: 0.8570
Epoch 498/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.340
6 - accuracy: 0.8592
Epoch 499/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.340
4 - accuracy: 0.8574
Epoch 500/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.340
3 - accuracy: 0.8600 - loss: 0.3393 - accuracy: 0.
Train on 6030 samples
Epoch 1/500
6030/6030 [=====] - 2s 329us/sample - loss: 0.581
2 - accuracy: 0.7902
Epoch 2/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.455
1 - accuracy: 0.7907
Epoch 3/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.443
2 - accuracy: 0.7907
Epoch 4/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.438
7 - accuracy: 0.7907
Epoch 5/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.435
6 - accuracy: 0.7907 - 1
Epoch 6/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.433
6 - accuracy: 0.7907
Epoch 7/500
```

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6030/6030 [=====] - 1s 189us/sample - loss: 0.431
1 - accuracy: 0.7907
Epoch 8/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.428
9 - accuracy: 0.8045
Epoch 9/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.426
8 - accuracy: 0.8164
Epoch 10/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.425
2 - accuracy: 0.8184
Epoch 11/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.423
9 - accuracy: 0.8197
Epoch 12/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.422
7 - accuracy: 0.8231
Epoch 13/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.421
5 - accuracy: 0.8259
Epoch 14/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.420
9 - accuracy: 0.8260
Epoch 15/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.420
1 - accuracy: 0.8272
Epoch 16/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.419
1 - accuracy: 0.8277
Epoch 17/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.418
3 - accuracy: 0.8285
Epoch 18/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.417
4 - accuracy: 0.8280
Epoch 19/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.417
4 - accuracy: 0.8279
Epoch 20/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.416
2 - accuracy: 0.8287
Epoch 21/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.415
9 - accuracy: 0.8297
Epoch 22/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.415
7 - accuracy: 0.8294
Epoch 23/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.415
1 - accuracy: 0.8282
Epoch 24/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.415
0 - accuracy: 0.8300
Epoch 25/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.414
2 - accuracy: 0.8285
Epoch 26/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.413
6 - accuracy: 0.8294
Epoch 27/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.413
```

```
5 - accuracy: 0.8282
Epoch 28/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.413
1 - accuracy: 0.8294
Epoch 29/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.413
0 - accuracy: 0.8287
Epoch 30/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.412
4 - accuracy: 0.8310
Epoch 31/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.412
2 - accuracy: 0.8302
Epoch 32/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.411
9 - accuracy: 0.8308
Epoch 33/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.411
6 - accuracy: 0.8279
Epoch 34/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.411
3 - accuracy: 0.8305
Epoch 35/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.411
1 - accuracy: 0.8303
Epoch 36/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.410
4 - accuracy: 0.8295
Epoch 37/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.410
4 - accuracy: 0.8305
Epoch 38/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.410
2 - accuracy: 0.8295
Epoch 39/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.410
0 - accuracy: 0.8318
Epoch 40/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.409
6 - accuracy: 0.8313
Epoch 41/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.409
3 - accuracy: 0.8303
Epoch 42/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.409
0 - accuracy: 0.8295
Epoch 43/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.408
5 - accuracy: 0.8330
Epoch 44/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.408
7 - accuracy: 0.8313
Epoch 45/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.408
3 - accuracy: 0.8310
Epoch 46/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.408
0 - accuracy: 0.8310
Epoch 47/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.407
7 - accuracy: 0.8300
```



Epoch 48/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.407  
3 - accuracy: 0.8313  
Epoch 49/500  
6030/6030 [=====] - 1s 227us/sample - loss: 0.406  
5 - accuracy: 0.8315  
Epoch 50/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.406  
6 - accuracy: 0.8308  
Epoch 51/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.406  
2 - accuracy: 0.8313  
Epoch 52/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.405  
7 - accuracy: 0.8308  
Epoch 53/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.405  
5 - accuracy: 0.8300  
Epoch 54/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.405  
3 - accuracy: 0.8322  
Epoch 55/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.405  
2 - accuracy: 0.8327  
Epoch 56/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.404  
9 - accuracy: 0.8317  
Epoch 57/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.404  
4 - accuracy: 0.8317  
Epoch 58/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.404  
5 - accuracy: 0.8322  
Epoch 59/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.404  
1 - accuracy: 0.8327  
Epoch 60/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.403  
9 - accuracy: 0.8320  
Epoch 61/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.403  
8 - accuracy: 0.8327  
Epoch 62/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.403  
5 - accuracy: 0.8328  
Epoch 63/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.403  
9 - accuracy: 0.8320  
Epoch 64/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.403  
2 - accuracy: 0.8305  
Epoch 65/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.403  
6 - accuracy: 0.8325  
Epoch 66/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.403  
0 - accuracy: 0.8328  
Epoch 67/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.403  
3 - accuracy: 0.8320  
Epoch 68/500

```
6030/6030 [=====] - 1s 195us/sample - loss: 0.403
1 - accuracy: 0.8328
Epoch 69/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.402
7 - accuracy: 0.8333
Epoch 70/500
6030/6030 [=====] - 1s 248us/sample - loss: 0.403
1 - accuracy: 0.8328
Epoch 71/500
6030/6030 [=====] - 1s 238us/sample - loss: 0.402
9 - accuracy: 0.8313
Epoch 72/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.402
8 - accuracy: 0.8340
Epoch 73/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.402
7 - accuracy: 0.8323
Epoch 74/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.402
5 - accuracy: 0.8322
Epoch 75/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.402
3 - accuracy: 0.8330
Epoch 76/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.402
2 - accuracy: 0.8355
Epoch 77/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.402
4 - accuracy: 0.8327
Epoch 78/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.401
8 - accuracy: 0.8355
Epoch 79/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.401
9 - accuracy: 0.8318
Epoch 80/500
6030/6030 [=====] - 1s 246us/sample - loss: 0.402
3 - accuracy: 0.8322
Epoch 81/500
6030/6030 [=====] - 2s 307us/sample - loss: 0.402
0 - accuracy: 0.8342
Epoch 82/500
6030/6030 [=====] - 2s 261us/sample - loss: 0.402
2 - accuracy: 0.8323
Epoch 83/500
6030/6030 [=====] - 2s 259us/sample - loss: 0.401
7 - accuracy: 0.8322
Epoch 84/500
6030/6030 [=====] - 2s 268us/sample - loss: 0.401
8 - accuracy: 0.8325
Epoch 85/500
6030/6030 [=====] - 2s 249us/sample - loss: 0.401
6 - accuracy: 0.8322
Epoch 86/500
6030/6030 [=====] - 2s 284us/sample - loss: 0.400
8 - accuracy: 0.8310
Epoch 87/500
6030/6030 [=====] - 2s 275us/sample - loss: 0.400
9 - accuracy: 0.8338
Epoch 88/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.401
```

```
2 - accuracy: 0.8342
Epoch 89/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.401
2 - accuracy: 0.8335
Epoch 90/500
6030/6030 [=====] - 2s 251us/sample - loss: 0.400
7 - accuracy: 0.8333
Epoch 91/500
6030/6030 [=====] - 2s 300us/sample - loss: 0.401
2 - accuracy: 0.8348
Epoch 92/500
6030/6030 [=====] - 2s 310us/sample - loss: 0.401
0 - accuracy: 0.8333 - loss: 0.4024 - accuracy
Epoch 93/500
6030/6030 [=====] - 2s 284us/sample - loss: 0.400
8 - accuracy: 0.8352
Epoch 94/500
6030/6030 [=====] - 2s 309us/sample - loss: 0.400
4 - accuracy: 0.8325
Epoch 95/500
6030/6030 [=====] - 2s 273us/sample - loss: 0.400
5 - accuracy: 0.8343
Epoch 96/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.400
6 - accuracy: 0.8342
Epoch 97/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.400
4 - accuracy: 0.8337
Epoch 98/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.400
1 - accuracy: 0.8323
Epoch 99/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.400
1 - accuracy: 0.8332
Epoch 100/500
6030/6030 [=====] - 1s 224us/sample - loss: 0.400
2 - accuracy: 0.8333
Epoch 101/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.399
9 - accuracy: 0.8308
Epoch 102/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.400
0 - accuracy: 0.8332
Epoch 103/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.399
6 - accuracy: 0.8332
Epoch 104/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.399
6 - accuracy: 0.8328
Epoch 105/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.399
5 - accuracy: 0.8322
Epoch 106/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.399
9 - accuracy: 0.8318
Epoch 107/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.399
6 - accuracy: 0.8332
Epoch 108/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.399
6 - accuracy: 0.8325
```

Epoch 109/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.398  
8 - accuracy: 0.8317  
Epoch 110/500  
6030/6030 [=====] - 1s 236us/sample - loss: 0.399  
3 - accuracy: 0.8328  
Epoch 111/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.398  
6 - accuracy: 0.8320  
Epoch 112/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.399  
1 - accuracy: 0.8322  
Epoch 113/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.398  
6 - accuracy: 0.8343  
Epoch 114/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.399  
1 - accuracy: 0.8330  
Epoch 115/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.398  
9 - accuracy: 0.8333  
Epoch 116/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.398  
6 - accuracy: 0.8345  
Epoch 117/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.398  
5 - accuracy: 0.8338  
Epoch 118/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.398  
7 - accuracy: 0.8330  
Epoch 119/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.398  
1 - accuracy: 0.8355  
Epoch 120/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.398  
5 - accuracy: 0.8337  
Epoch 121/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.398  
8 - accuracy: 0.8343  
Epoch 122/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.398  
3 - accuracy: 0.8362  
Epoch 123/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.398  
1 - accuracy: 0.8317  
Epoch 124/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.398  
4 - accuracy: 0.8325  
Epoch 125/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.398  
1 - accuracy: 0.8323  
Epoch 126/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.398  
0 - accuracy: 0.8325  
Epoch 127/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.398  
4 - accuracy: 0.8352  
Epoch 128/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.398  
3 - accuracy: 0.8327  
Epoch 129/500

```
6030/6030 [=====] - 1s 189us/sample - loss: 0.397
9 - accuracy: 0.8327
Epoch 130/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.398
4 - accuracy: 0.8327
Epoch 131/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.397
6 - accuracy: 0.8335
Epoch 132/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.398
0 - accuracy: 0.8338
Epoch 133/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.397
8 - accuracy: 0.8333
Epoch 134/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.398
1 - accuracy: 0.8335
Epoch 135/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.397
5 - accuracy: 0.8353
Epoch 136/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.397
7 - accuracy: 0.8348
Epoch 137/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.397
6 - accuracy: 0.8330
Epoch 138/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.397
8 - accuracy: 0.8337
Epoch 139/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.397
3 - accuracy: 0.8342
Epoch 140/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.397
6 - accuracy: 0.8347
Epoch 141/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.397
4 - accuracy: 0.8342
Epoch 142/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.397
5 - accuracy: 0.8340
Epoch 143/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.397
2 - accuracy: 0.8337
Epoch 144/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.397
5 - accuracy: 0.8340
Epoch 145/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.397
6 - accuracy: 0.8352
Epoch 146/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.397
1 - accuracy: 0.8353
Epoch 147/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.397
5 - accuracy: 0.8337
Epoch 148/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.396
9 - accuracy: 0.8332
Epoch 149/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.396
```

```
9 - accuracy: 0.8355
Epoch 150/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.397
2 - accuracy: 0.8342
Epoch 151/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.396
8 - accuracy: 0.8348
Epoch 152/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.397
1 - accuracy: 0.8348
Epoch 153/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.396
7 - accuracy: 0.8368
Epoch 154/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.396
8 - accuracy: 0.8345
Epoch 155/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.397
0 - accuracy: 0.8338
Epoch 156/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.396
9 - accuracy: 0.8342
Epoch 157/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.396
8 - accuracy: 0.8358
Epoch 158/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.396
4 - accuracy: 0.8345
Epoch 159/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.396
9 - accuracy: 0.8363
Epoch 160/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.396
5 - accuracy: 0.8330
Epoch 161/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.397
0 - accuracy: 0.8348
Epoch 162/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.396
8 - accuracy: 0.8342
Epoch 163/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.396
6 - accuracy: 0.8352
Epoch 164/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.396
8 - accuracy: 0.8333
Epoch 165/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.396
8 - accuracy: 0.8358
Epoch 166/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.396
6 - accuracy: 0.8362
Epoch 167/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.397
0 - accuracy: 0.8313
Epoch 168/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.396
7 - accuracy: 0.8338
Epoch 169/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.396
3 - accuracy: 0.8358
```

Epoch 170/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.396  
3 - accuracy: 0.8348  
Epoch 171/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.396  
8 - accuracy: 0.8353  
Epoch 172/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.396  
9 - accuracy: 0.8353  
Epoch 173/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.396  
5 - accuracy: 0.8335  
Epoch 174/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.396  
3 - accuracy: 0.8340  
Epoch 175/500  
6030/6030 [=====] - 1s 228us/sample - loss: 0.396  
5 - accuracy: 0.8338  
Epoch 176/500  
6030/6030 [=====] - 1s 240us/sample - loss: 0.396  
4 - accuracy: 0.8347  
Epoch 177/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.396  
7 - accuracy: 0.8342  
Epoch 178/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.396  
3 - accuracy: 0.8342  
Epoch 179/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.396  
4 - accuracy: 0.8357  
Epoch 180/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.396  
5 - accuracy: 0.8358  
Epoch 181/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.396  
6 - accuracy: 0.8338  
Epoch 182/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.396  
6 - accuracy: 0.8342  
Epoch 183/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.396  
6 - accuracy: 0.8333  
Epoch 184/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.396  
3 - accuracy: 0.8338  
Epoch 185/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.396  
6 - accuracy: 0.8342  
Epoch 186/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.396  
4 - accuracy: 0.8340  
Epoch 187/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.396  
6 - accuracy: 0.8353  
Epoch 188/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.396  
8 - accuracy: 0.8345  
Epoch 189/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.396  
6 - accuracy: 0.8345  
Epoch 190/500

```
6030/6030 [=====] - 1s 195us/sample - loss: 0.396
6 - accuracy: 0.8335
Epoch 191/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.396
5 - accuracy: 0.8345
Epoch 192/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.396
5 - accuracy: 0.8352
Epoch 193/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.396
2 - accuracy: 0.8348
Epoch 194/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.396
5 - accuracy: 0.8325
Epoch 195/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.396
3 - accuracy: 0.8350
Epoch 196/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
3 - accuracy: 0.8348
Epoch 197/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.396
5 - accuracy: 0.8328
Epoch 198/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.396
4 - accuracy: 0.8328
Epoch 199/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.396
2 - accuracy: 0.8348
Epoch 200/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.396
5 - accuracy: 0.8340
Epoch 201/500
6030/6030 [=====] - 2s 257us/sample - loss: 0.396
5 - accuracy: 0.8347
Epoch 202/500
6030/6030 [=====] - 2s 250us/sample - loss: 0.396
2 - accuracy: 0.8350
Epoch 203/500
6030/6030 [=====] - 2s 255us/sample - loss: 0.396
4 - accuracy: 0.8348
Epoch 204/500
6030/6030 [=====] - 1s 247us/sample - loss: 0.396
4 - accuracy: 0.8355
Epoch 205/500
6030/6030 [=====] - 2s 252us/sample - loss: 0.396
6 - accuracy: 0.8357
Epoch 206/500
6030/6030 [=====] - 2s 251us/sample - loss: 0.395
9 - accuracy: 0.8360
Epoch 207/500
6030/6030 [=====] - 2s 250us/sample - loss: 0.396
2 - accuracy: 0.8343
Epoch 208/500
6030/6030 [=====] - 2s 250us/sample - loss: 0.396
3 - accuracy: 0.8348
Epoch 209/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.396
5 - accuracy: 0.8338
Epoch 210/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.396
```



```
2 - accuracy: 0.8355
Epoch 211/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.396
5 - accuracy: 0.8335
Epoch 212/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.396
8 - accuracy: 0.8347
Epoch 213/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.395
5 - accuracy: 0.8370
Epoch 214/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.396
3 - accuracy: 0.8337
Epoch 215/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.396
5 - accuracy: 0.8333
Epoch 216/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.396
5 - accuracy: 0.8370
Epoch 217/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.396
5 - accuracy: 0.8352
Epoch 218/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
0 - accuracy: 0.8353
Epoch 219/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.396
6 - accuracy: 0.8337
Epoch 220/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.396
3 - accuracy: 0.8355
Epoch 221/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.396
2 - accuracy: 0.8348
Epoch 222/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.396
4 - accuracy: 0.8357
Epoch 223/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.396
0 - accuracy: 0.8348
Epoch 224/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.396
4 - accuracy: 0.8347
Epoch 225/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.396
4 - accuracy: 0.8340
Epoch 226/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.396
3 - accuracy: 0.8353
Epoch 227/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.396
4 - accuracy: 0.8343
Epoch 228/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.396
6 - accuracy: 0.8355
Epoch 229/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.396
1 - accuracy: 0.8370
Epoch 230/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.396
2 - accuracy: 0.8345
```

Epoch 231/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.396  
3 - accuracy: 0.8340  
Epoch 232/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.396  
6 - accuracy: 0.8360  
Epoch 233/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.396  
3 - accuracy: 0.8350  
Epoch 234/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.396  
2 - accuracy: 0.8338  
Epoch 235/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.396  
5 - accuracy: 0.8353  
Epoch 236/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.396  
6 - accuracy: 0.8343  
Epoch 237/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.396  
1 - accuracy: 0.8347  
Epoch 238/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.396  
1 - accuracy: 0.8347  
Epoch 239/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.396  
2 - accuracy: 0.8358  
Epoch 240/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.396  
4 - accuracy: 0.8342  
Epoch 241/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.395  
5 - accuracy: 0.8347  
Epoch 242/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.396  
3 - accuracy: 0.8357  
Epoch 243/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.396  
2 - accuracy: 0.8350  
Epoch 244/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.396  
2 - accuracy: 0.8342  
Epoch 245/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.396  
5 - accuracy: 0.8347  
Epoch 246/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.396  
1 - accuracy: 0.8350  
Epoch 247/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.396  
2 - accuracy: 0.8371  
Epoch 248/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.396  
3 - accuracy: 0.8358  
Epoch 249/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.396  
2 - accuracy: 0.8337  
Epoch 250/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.396  
1 - accuracy: 0.8363  
Epoch 251/500

```
6030/6030 [=====] - 1s 195us/sample - loss: 0.395
9 - accuracy: 0.8353 -
Epoch 252/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.396
2 - accuracy: 0.8348
Epoch 253/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.396
0 - accuracy: 0.8365
Epoch 254/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.396
0 - accuracy: 0.8350
Epoch 255/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.396
1 - accuracy: 0.8367
Epoch 256/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.396
3 - accuracy: 0.8358
Epoch 257/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.395
9 - accuracy: 0.8358
Epoch 258/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.395
7 - accuracy: 0.8362
Epoch 259/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.396
0 - accuracy: 0.8376
Epoch 260/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.395
8 - accuracy: 0.8358
Epoch 261/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
0 - accuracy: 0.8353
Epoch 262/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.395
9 - accuracy: 0.8352
Epoch 263/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.395
6 - accuracy: 0.8360
Epoch 264/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.395
5 - accuracy: 0.8362
Epoch 265/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.396
0 - accuracy: 0.8368
Epoch 266/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.395
6 - accuracy: 0.8342
Epoch 267/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.396
1 - accuracy: 0.8376
Epoch 268/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.395
9 - accuracy: 0.8370
Epoch 269/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
0 - accuracy: 0.8355
Epoch 270/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.396
0 - accuracy: 0.8358
Epoch 271/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.396
```

```
0 - accuracy: 0.8348
Epoch 272/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.396
0 - accuracy: 0.8360
Epoch 273/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.395
7 - accuracy: 0.8355
Epoch 274/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.396
1 - accuracy: 0.8357
Epoch 275/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.395
3 - accuracy: 0.8375
Epoch 276/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.396
0 - accuracy: 0.8358
Epoch 277/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.395
9 - accuracy: 0.8365
Epoch 278/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.396
1 - accuracy: 0.8363
Epoch 279/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.395
8 - accuracy: 0.8365
Epoch 280/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.395
7 - accuracy: 0.8357
Epoch 281/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.395
8 - accuracy: 0.8357
Epoch 282/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.395
4 - accuracy: 0.8342
Epoch 283/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.395
5 - accuracy: 0.8381
Epoch 284/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.396
1 - accuracy: 0.8352
Epoch 285/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.395
9 - accuracy: 0.8362
Epoch 286/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.396
0 - accuracy: 0.8355
Epoch 287/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
0 - accuracy: 0.8353
Epoch 288/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.395
6 - accuracy: 0.8365
Epoch 289/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.395
7 - accuracy: 0.8360
Epoch 290/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.395
5 - accuracy: 0.8350
Epoch 291/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.396
0 - accuracy: 0.8342
```

Epoch 292/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.396  
2 - accuracy: 0.8348  
Epoch 293/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.396  
0 - accuracy: 0.8365  
Epoch 294/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.395  
4 - accuracy: 0.8350  
Epoch 295/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.395  
6 - accuracy: 0.8345  
Epoch 296/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.395  
8 - accuracy: 0.8353  
Epoch 297/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.395  
6 - accuracy: 0.8353  
Epoch 298/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.395  
8 - accuracy: 0.8343  
Epoch 299/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.395  
6 - accuracy: 0.8360  
Epoch 300/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.395  
8 - accuracy: 0.8370  
Epoch 301/500  
6030/6030 [=====] - 1s 213us/sample - loss: 0.395  
7 - accuracy: 0.8347  
Epoch 302/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.395  
3 - accuracy: 0.8348  
Epoch 303/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.395  
4 - accuracy: 0.8347  
Epoch 304/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.395  
4 - accuracy: 0.8342  
Epoch 305/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.395  
1 - accuracy: 0.8358  
Epoch 306/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.395  
5 - accuracy: 0.8347  
Epoch 307/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.395  
7 - accuracy: 0.8355  
Epoch 308/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.395  
4 - accuracy: 0.8343  
Epoch 309/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.395  
5 - accuracy: 0.8348  
Epoch 310/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.395  
4 - accuracy: 0.8358  
Epoch 311/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.395  
1 - accuracy: 0.8358  
Epoch 312/500

```
6030/6030 [=====] - 1s 192us/sample - loss: 0.395
0 - accuracy: 0.8332
Epoch 313/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.395
1 - accuracy: 0.8345
Epoch 314/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.395
5 - accuracy: 0.8362
Epoch 315/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.395
3 - accuracy: 0.8358
Epoch 316/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.395
0 - accuracy: 0.8368
Epoch 317/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.395
0 - accuracy: 0.8353
Epoch 318/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.395
0 - accuracy: 0.8357
Epoch 319/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.395
3 - accuracy: 0.8358
Epoch 320/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.395
2 - accuracy: 0.8345
Epoch 321/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.395
3 - accuracy: 0.8368
Epoch 322/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.395
4 - accuracy: 0.8337
Epoch 323/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.395
0 - accuracy: 0.8360
Epoch 324/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.395
3 - accuracy: 0.8363
Epoch 325/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.394
9 - accuracy: 0.8348
Epoch 326/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.395
3 - accuracy: 0.8367
Epoch 327/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.394
9 - accuracy: 0.8337
Epoch 328/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.394
7 - accuracy: 0.8360
Epoch 329/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.395
2 - accuracy: 0.8357
Epoch 330/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.395
0 - accuracy: 0.8358
Epoch 331/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
6 - accuracy: 0.8355
Epoch 332/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
```

```
8 - accuracy: 0.8358
Epoch 333/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.394
8 - accuracy: 0.8353
Epoch 334/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.394
5 - accuracy: 0.8353
Epoch 335/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.394
7 - accuracy: 0.8357
Epoch 336/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.394
9 - accuracy: 0.8380
Epoch 337/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.394
8 - accuracy: 0.8368
Epoch 338/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.394
6 - accuracy: 0.8355
Epoch 339/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
5 - accuracy: 0.8370
Epoch 340/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.394
9 - accuracy: 0.8367
Epoch 341/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.395
0 - accuracy: 0.8368
Epoch 342/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.394
9 - accuracy: 0.8363
Epoch 343/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.394
7 - accuracy: 0.8367
Epoch 344/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
6 - accuracy: 0.8360
Epoch 345/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
7 - accuracy: 0.8370
Epoch 346/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.394
9 - accuracy: 0.8343
Epoch 347/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.394
3 - accuracy: 0.8367
Epoch 348/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.394
4 - accuracy: 0.8367
Epoch 349/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.394
2 - accuracy: 0.8376
Epoch 350/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.393
8 - accuracy: 0.8357
Epoch 351/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.394
7 - accuracy: 0.8353
Epoch 352/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.394
4 - accuracy: 0.8358
```

Epoch 353/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.394  
2 - accuracy: 0.8353  
Epoch 354/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.394  
1 - accuracy: 0.8362  
Epoch 355/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.394  
5 - accuracy: 0.8386  
Epoch 356/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.394  
4 - accuracy: 0.8367  
Epoch 357/500  
6030/6030 [=====] - 1s 217us/sample - loss: 0.394  
0 - accuracy: 0.8381  
Epoch 358/500  
6030/6030 [=====] - 1s 236us/sample - loss: 0.394  
6 - accuracy: 0.8340  
Epoch 359/500  
6030/6030 [=====] - 1s 236us/sample - loss: 0.394  
0 - accuracy: 0.8376  
Epoch 360/500  
6030/6030 [=====] - 2s 251us/sample - loss: 0.394  
4 - accuracy: 0.8358  
Epoch 361/500  
6030/6030 [=====] - 1s 245us/sample - loss: 0.393  
5 - accuracy: 0.8360  
Epoch 362/500  
6030/6030 [=====] - 1s 228us/sample - loss: 0.393  
7 - accuracy: 0.8357  
Epoch 363/500  
6030/6030 [=====] - 1s 225us/sample - loss: 0.393  
5 - accuracy: 0.8378  
Epoch 364/500  
6030/6030 [=====] - 1s 218us/sample - loss: 0.393  
8 - accuracy: 0.8362  
Epoch 365/500  
6030/6030 [=====] - 1s 223us/sample - loss: 0.393  
4 - accuracy: 0.8375  
Epoch 366/500  
6030/6030 [=====] - 1s 224us/sample - loss: 0.393  
8 - accuracy: 0.8386  
Epoch 367/500  
6030/6030 [=====] - 1s 223us/sample - loss: 0.394  
0 - accuracy: 0.8380  
Epoch 368/500  
6030/6030 [=====] - 2s 290us/sample - loss: 0.393  
8 - accuracy: 0.8375  
Epoch 369/500  
6030/6030 [=====] - 2s 251us/sample - loss: 0.393  
5 - accuracy: 0.8383  
Epoch 370/500  
6030/6030 [=====] - 1s 223us/sample - loss: 0.393  
9 - accuracy: 0.8362  
Epoch 371/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.393  
9 - accuracy: 0.8375  
Epoch 372/500  
6030/6030 [=====] - 1s 215us/sample - loss: 0.392  
9 - accuracy: 0.8373  
Epoch 373/500



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6030/6030 [=====] - 1s 247us/sample - loss: 0.394
1 - accuracy: 0.8376
Epoch 374/500
6030/6030 [=====] - 1s 231us/sample - loss: 0.393
8 - accuracy: 0.8390
Epoch 375/500
6030/6030 [=====] - 2s 287us/sample - loss: 0.393
9 - accuracy: 0.8365
Epoch 376/500
6030/6030 [=====] - 2s 255us/sample - loss: 0.393
3 - accuracy: 0.8375
Epoch 377/500
6030/6030 [=====] - 2s 279us/sample - loss: 0.393
7 - accuracy: 0.8376
Epoch 378/500
6030/6030 [=====] - 2s 308us/sample - loss: 0.393
3 - accuracy: 0.8363
Epoch 379/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.393
6 - accuracy: 0.8362
Epoch 380/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.393
7 - accuracy: 0.8390
Epoch 381/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.393
3 - accuracy: 0.8373
Epoch 382/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.393
6 - accuracy: 0.8362
Epoch 383/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.393
2 - accuracy: 0.8396
Epoch 384/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.393
5 - accuracy: 0.8373
Epoch 385/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.393
3 - accuracy: 0.8383
Epoch 386/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.393
2 - accuracy: 0.8391
Epoch 387/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.393
4 - accuracy: 0.8385
Epoch 388/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.392
8 - accuracy: 0.8401
Epoch 389/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.392
5 - accuracy: 0.8383
Epoch 390/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.392
9 - accuracy: 0.8373
Epoch 391/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.392
6 - accuracy: 0.8388 - loss: 0
Epoch 392/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.392
4 - accuracy: 0.8381
Epoch 393/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.392
```

```
2 - accuracy: 0.8383
Epoch 394/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.391
7 - accuracy: 0.8385
Epoch 395/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.391
8 - accuracy: 0.8405
Epoch 396/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.391
1 - accuracy: 0.8400
Epoch 397/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.391
0 - accuracy: 0.8396
Epoch 398/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.391
0 - accuracy: 0.8410
Epoch 399/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.390
2 - accuracy: 0.8395
Epoch 400/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.390
2 - accuracy: 0.8403
Epoch 401/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.389
6 - accuracy: 0.8441
Epoch 402/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.388
9 - accuracy: 0.8406
Epoch 403/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.388
8 - accuracy: 0.8416
Epoch 404/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.387
9 - accuracy: 0.8416
Epoch 405/500
6030/6030 [=====] - 2s 271us/sample - loss: 0.386
9 - accuracy: 0.8436
Epoch 406/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.386
2 - accuracy: 0.8431
Epoch 407/500
6030/6030 [=====] - 1s 231us/sample - loss: 0.384
4 - accuracy: 0.8421
Epoch 408/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.383
8 - accuracy: 0.8430
Epoch 409/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.381
8 - accuracy: 0.8476
Epoch 410/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.380
4 - accuracy: 0.8481
Epoch 411/500
6030/6030 [=====] - 1s 246us/sample - loss: 0.378
6 - accuracy: 0.8476
Epoch 412/500
6030/6030 [=====] - 2s 262us/sample - loss: 0.375
5 - accuracy: 0.8479
Epoch 413/500
6030/6030 [=====] - 2s 264us/sample - loss: 0.372
7 - accuracy: 0.8499
```

Epoch 414/500  
6030/6030 [=====] - 2s 279us/sample - loss: 0.369  
6 - accuracy: 0.8494  
Epoch 415/500  
6030/6030 [=====] - 2s 265us/sample - loss: 0.365  
5 - accuracy: 0.8509  
Epoch 416/500  
6030/6030 [=====] - 2s 251us/sample - loss: 0.361  
4 - accuracy: 0.8517  
Epoch 417/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.357  
8 - accuracy: 0.8537  
Epoch 418/500  
6030/6030 [=====] - 1s 240us/sample - loss: 0.355  
2 - accuracy: 0.8534  
Epoch 419/500  
6030/6030 [=====] - 1s 232us/sample - loss: 0.353  
0 - accuracy: 0.8554  
Epoch 420/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.351  
0 - accuracy: 0.8569  
Epoch 421/500  
6030/6030 [=====] - 1s 244us/sample - loss: 0.349  
1 - accuracy: 0.8584  
Epoch 422/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.348  
2 - accuracy: 0.8579  
Epoch 423/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.347  
0 - accuracy: 0.8580  
Epoch 424/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.345  
4 - accuracy: 0.8602  
Epoch 425/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.345  
4 - accuracy: 0.8584  
Epoch 426/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.344  
1 - accuracy: 0.8597  
Epoch 427/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.344  
3 - accuracy: 0.8614  
Epoch 428/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.344  
0 - accuracy: 0.8597  
Epoch 429/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.343  
3 - accuracy: 0.8614  
Epoch 430/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.343  
3 - accuracy: 0.8620  
Epoch 431/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.342  
6 - accuracy: 0.8633  
Epoch 432/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.343  
0 - accuracy: 0.8615  
Epoch 433/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.342  
7 - accuracy: 0.8595  
Epoch 434/500

```
6030/6030 [=====] - 1s 186us/sample - loss: 0.342
2 - accuracy: 0.8622
Epoch 435/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.341
6 - accuracy: 0.8607
Epoch 436/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.341
8 - accuracy: 0.8610
Epoch 437/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.342
0 - accuracy: 0.8592
Epoch 438/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.341
8 - accuracy: 0.8600
Epoch 439/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.341
8 - accuracy: 0.8587
Epoch 440/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.341
6 - accuracy: 0.8605
Epoch 441/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.341
6 - accuracy: 0.8599
Epoch 442/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.341
8 - accuracy: 0.8640
Epoch 443/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.341
7 - accuracy: 0.8600
Epoch 444/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.341
6 - accuracy: 0.8607
Epoch 445/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.341
3 - accuracy: 0.8602
Epoch 446/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.341
6 - accuracy: 0.8600
Epoch 447/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.340
8 - accuracy: 0.8625
Epoch 448/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.341
7 - accuracy: 0.8595
Epoch 449/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.341
6 - accuracy: 0.8614
Epoch 450/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.340
8 - accuracy: 0.8610
Epoch 451/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.341
2 - accuracy: 0.8594
Epoch 452/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.341
8 - accuracy: 0.8615
Epoch 453/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.340
9 - accuracy: 0.8605
Epoch 454/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.340
```

```
9 - accuracy: 0.8595
Epoch 455/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.341
2 - accuracy: 0.8602
Epoch 456/500
6030/6030 [=====] - 1s 240us/sample - loss: 0.341
0 - accuracy: 0.8617
Epoch 457/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.341
1 - accuracy: 0.8600
Epoch 458/500
6030/6030 [=====] - 1s 238us/sample - loss: 0.341
0 - accuracy: 0.8582
Epoch 459/500
6030/6030 [=====] - 1s 243us/sample - loss: 0.340
4 - accuracy: 0.8600 - loss: 0.3454 - ac
Epoch 460/500
6030/6030 [=====] - 1s 236us/sample - loss: 0.340
8 - accuracy: 0.8607
Epoch 461/500
6030/6030 [=====] - 1s 240us/sample - loss: 0.340
7 - accuracy: 0.8607
Epoch 462/500
6030/6030 [=====] - 1s 247us/sample - loss: 0.340
7 - accuracy: 0.8602
Epoch 463/500
6030/6030 [=====] - 1s 240us/sample - loss: 0.340
9 - accuracy: 0.8602
Epoch 464/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.340
6 - accuracy: 0.8615
Epoch 465/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.340
9 - accuracy: 0.8610
Epoch 466/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.340
8 - accuracy: 0.8620
Epoch 467/500
6030/6030 [=====] - 2s 250us/sample - loss: 0.340
5 - accuracy: 0.8624
Epoch 468/500
6030/6030 [=====] - 2s 250us/sample - loss: 0.340
8 - accuracy: 0.8609
Epoch 469/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.339
8 - accuracy: 0.8600
Epoch 470/500
6030/6030 [=====] - 1s 236us/sample - loss: 0.340
2 - accuracy: 0.8624
Epoch 471/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.340
4 - accuracy: 0.8592
Epoch 472/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.340
7 - accuracy: 0.8597
Epoch 473/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.340
2 - accuracy: 0.8584
Epoch 474/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.341
1 - accuracy: 0.8620
```

Epoch 475/500  
6030/6030 [=====] - 2s 276us/sample - loss: 0.340  
5 - accuracy: 0.8610  
Epoch 476/500  
6030/6030 [=====] - 1s 232us/sample - loss: 0.340  
8 - accuracy: 0.8604  
Epoch 477/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.340  
8 - accuracy: 0.8580  
Epoch 478/500  
6030/6030 [=====] - 1s 242us/sample - loss: 0.341  
1 - accuracy: 0.8590  
Epoch 479/500  
6030/6030 [=====] - 1s 224us/sample - loss: 0.340  
4 - accuracy: 0.8600  
Epoch 480/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.340  
4 - accuracy: 0.8600  
Epoch 481/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.340  
2 - accuracy: 0.8609  
Epoch 482/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.340  
1 - accuracy: 0.8614  
Epoch 483/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.340  
4 - accuracy: 0.8612  
Epoch 484/500  
6030/6030 [=====] - 1s 233us/sample - loss: 0.340  
7 - accuracy: 0.8610  
Epoch 485/500  
6030/6030 [=====] - 1s 211us/sample - loss: 0.340  
5 - accuracy: 0.8600  
Epoch 486/500  
6030/6030 [=====] - 1s 210us/sample - loss: 0.340  
2 - accuracy: 0.8610  
Epoch 487/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.340  
4 - accuracy: 0.8610  
Epoch 488/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.340  
6 - accuracy: 0.8614  
Epoch 489/500  
6030/6030 [=====] - 1s 211us/sample - loss: 0.340  
4 - accuracy: 0.8590  
Epoch 490/500  
6030/6030 [=====] - 1s 226us/sample - loss: 0.340  
2 - accuracy: 0.8592  
Epoch 491/500  
6030/6030 [=====] - 1s 223us/sample - loss: 0.339  
2 - accuracy: 0.8610  
Epoch 492/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.340  
2 - accuracy: 0.8633  
Epoch 493/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.339  
9 - accuracy: 0.8599  
Epoch 494/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.339  
9 - accuracy: 0.8607  
Epoch 495/500

```
6030/6030 [=====] - 1s 191us/sample - loss: 0.340
2 - accuracy: 0.8599
Epoch 496/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.339
9 - accuracy: 0.8594
Epoch 497/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.339
8 - accuracy: 0.8604
Epoch 498/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.340
1 - accuracy: 0.8617
Epoch 499/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.339
9 - accuracy: 0.8612 - loss: 0.3383 - accuracy:
Epoch 500/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.339
5 - accuracy: 0.8610
Train on 6030 samples
Epoch 1/500
6030/6030 [=====] - 2s 271us/sample - loss: 0.587
4 - accuracy: 0.7919
Epoch 2/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.454
3 - accuracy: 0.7919
Epoch 3/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.442
1 - accuracy: 0.7919
Epoch 4/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.438
3 - accuracy: 0.7919
Epoch 5/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.436
8 - accuracy: 0.7919
Epoch 6/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.435
5 - accuracy: 0.7919
Epoch 7/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.434
3 - accuracy: 0.7919
Epoch 8/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.433
4 - accuracy: 0.7919
Epoch 9/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.431
7 - accuracy: 0.7919
Epoch 10/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.429
6 - accuracy: 0.8081
Epoch 11/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.427
6 - accuracy: 0.8136
Epoch 12/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.426
0 - accuracy: 0.8159 - loss: 0.4319
Epoch 13/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.424
6 - accuracy: 0.8191
Epoch 14/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.423
2 - accuracy: 0.8227
Epoch 15/500
```

```
6030/6030 [=====] - 1s 184us/sample - loss: 0.421
7 - accuracy: 0.8244
Epoch 16/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.420
9 - accuracy: 0.8262
Epoch 17/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.420
2 - accuracy: 0.8262
Epoch 18/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.419
0 - accuracy: 0.8264
Epoch 19/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.418
6 - accuracy: 0.8279
Epoch 20/500
6030/6030 [=====] - 2s 260us/sample - loss: 0.417
9 - accuracy: 0.8260
Epoch 21/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.417
3 - accuracy: 0.8297
Epoch 22/500
6030/6030 [=====] - 1s 239us/sample - loss: 0.416
8 - accuracy: 0.8297
Epoch 23/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.416
1 - accuracy: 0.8289
Epoch 24/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.415
6 - accuracy: 0.8300
Epoch 25/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.415
0 - accuracy: 0.8308
Epoch 26/500
6030/6030 [=====] - 1s 240us/sample - loss: 0.414
9 - accuracy: 0.8297
Epoch 27/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.414
4 - accuracy: 0.8308
Epoch 28/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.414
1 - accuracy: 0.8307
Epoch 29/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.413
5 - accuracy: 0.8302
Epoch 30/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.413
2 - accuracy: 0.8305
Epoch 31/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.413
0 - accuracy: 0.8302
Epoch 32/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.412
6 - accuracy: 0.8313
Epoch 33/500
6030/6030 [=====] - 1s 236us/sample - loss: 0.412
4 - accuracy: 0.8313
Epoch 34/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.412
3 - accuracy: 0.8300
Epoch 35/500
6030/6030 [=====] - 2s 270us/sample - loss: 0.411
```



```
8 - accuracy: 0.8320
Epoch 36/500
6030/6030 [=====] - 1s 245us/sample - loss: 0.411
5 - accuracy: 0.8307
Epoch 37/500
6030/6030 [=====] - 2s 298us/sample - loss: 0.411
5 - accuracy: 0.8307
Epoch 38/500
6030/6030 [=====] - 2s 279us/sample - loss: 0.411
0 - accuracy: 0.8323
Epoch 39/500
6030/6030 [=====] - 2s 282us/sample - loss: 0.411
2 - accuracy: 0.8305
Epoch 40/500
6030/6030 [=====] - 1s 234us/sample - loss: 0.411
0 - accuracy: 0.8323
Epoch 41/500
6030/6030 [=====] - 2s 251us/sample - loss: 0.410
3 - accuracy: 0.8322
Epoch 42/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.410
2 - accuracy: 0.8308
Epoch 43/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.410
1 - accuracy: 0.8320
Epoch 44/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.410
0 - accuracy: 0.8308
Epoch 45/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.409
5 - accuracy: 0.8327
Epoch 46/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.410
0 - accuracy: 0.8305
Epoch 47/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.409
5 - accuracy: 0.8312
Epoch 48/500
6030/6030 [=====] - 1s 234us/sample - loss: 0.409
8 - accuracy: 0.8320
Epoch 49/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.409
5 - accuracy: 0.8318
Epoch 50/500
6030/6030 [=====] - 2s 261us/sample - loss: 0.409
2 - accuracy: 0.8302
Epoch 51/500
6030/6030 [=====] - 1s 244us/sample - loss: 0.409
0 - accuracy: 0.8305
Epoch 52/500
6030/6030 [=====] - 2s 250us/sample - loss: 0.409
0 - accuracy: 0.8315
Epoch 53/500
6030/6030 [=====] - 2s 256us/sample - loss: 0.408
9 - accuracy: 0.8317
Epoch 54/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.408
5 - accuracy: 0.8303
Epoch 55/500
6030/6030 [=====] - 2s 263us/sample - loss: 0.408
4 - accuracy: 0.8295
```

Epoch 56/500  
6030/6030 [=====] - 2s 255us/sample - loss: 0.408  
3 - accuracy: 0.8308

Epoch 57/500  
6030/6030 [=====] - 2s 264us/sample - loss: 0.408  
0 - accuracy: 0.8327

Epoch 58/500  
6030/6030 [=====] - 2s 254us/sample - loss: 0.407  
5 - accuracy: 0.8328

Epoch 59/500  
6030/6030 [=====] - 2s 313us/sample - loss: 0.407  
3 - accuracy: 0.8318

Epoch 60/500  
6030/6030 [=====] - 2s 302us/sample - loss: 0.407  
3 - accuracy: 0.8308 - loss: 0.4063 - accuracy

Epoch 61/500  
6030/6030 [=====] - 2s 295us/sample - loss: 0.406  
6 - accuracy: 0.8318

Epoch 62/500  
6030/6030 [=====] - 2s 257us/sample - loss: 0.406  
5 - accuracy: 0.8308

Epoch 63/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.406  
4 - accuracy: 0.8323

Epoch 64/500  
6030/6030 [=====] - 1s 221us/sample - loss: 0.406  
2 - accuracy: 0.8323

Epoch 65/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.405  
9 - accuracy: 0.8337

Epoch 66/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.405  
5 - accuracy: 0.8318

Epoch 67/500  
6030/6030 [=====] - 1s 225us/sample - loss: 0.405  
7 - accuracy: 0.8332

Epoch 68/500  
6030/6030 [=====] - 1s 210us/sample - loss: 0.405  
3 - accuracy: 0.8332

Epoch 69/500  
6030/6030 [=====] - 1s 237us/sample - loss: 0.405  
1 - accuracy: 0.8318

Epoch 70/500  
6030/6030 [=====] - 1s 224us/sample - loss: 0.405  
1 - accuracy: 0.8330

Epoch 71/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.405  
0 - accuracy: 0.8358

Epoch 72/500  
6030/6030 [=====] - 1s 224us/sample - loss: 0.404  
2 - accuracy: 0.8332

Epoch 73/500  
6030/6030 [=====] - 2s 277us/sample - loss: 0.404  
7 - accuracy: 0.8328

Epoch 74/500  
6030/6030 [=====] - 1s 246us/sample - loss: 0.404  
6 - accuracy: 0.8353

Epoch 75/500  
6030/6030 [=====] - 1s 234us/sample - loss: 0.404  
4 - accuracy: 0.8335

Epoch 76/500

```
6030/6030 [=====] - 1s 217us/sample - loss: 0.403
9 - accuracy: 0.8350
Epoch 77/500
6030/6030 [=====] - 2s 254us/sample - loss: 0.403
9 - accuracy: 0.8348
Epoch 78/500
6030/6030 [=====] - 1s 239us/sample - loss: 0.404
0 - accuracy: 0.8355
Epoch 79/500
6030/6030 [=====] - 1s 246us/sample - loss: 0.404
0 - accuracy: 0.8350
Epoch 80/500
6030/6030 [=====] - 2s 319us/sample - loss: 0.404
0 - accuracy: 0.8365
Epoch 81/500
6030/6030 [=====] - 1s 239us/sample - loss: 0.403
6 - accuracy: 0.8335
Epoch 82/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.403
1 - accuracy: 0.8357
Epoch 83/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.403
4 - accuracy: 0.8363
Epoch 84/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.403
5 - accuracy: 0.8363
Epoch 85/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.403
4 - accuracy: 0.8352
Epoch 86/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.403
2 - accuracy: 0.8337
Epoch 87/500
6030/6030 [=====] - 1s 234us/sample - loss: 0.403
8 - accuracy: 0.8352
Epoch 88/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.403
5 - accuracy: 0.8350
Epoch 89/500
6030/6030 [=====] - 1s 246us/sample - loss: 0.402
9 - accuracy: 0.8353
Epoch 90/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.403
0 - accuracy: 0.8345
Epoch 91/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.403
1 - accuracy: 0.8360
Epoch 92/500
6030/6030 [=====] - 2s 259us/sample - loss: 0.403
0 - accuracy: 0.8360
Epoch 93/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.403
0 - accuracy: 0.8328
Epoch 94/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.402
9 - accuracy: 0.8352
Epoch 95/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.402
6 - accuracy: 0.8338
Epoch 96/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.402
```

```
5 - accuracy: 0.8355
Epoch 97/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.402
6 - accuracy: 0.8362
Epoch 98/500
6030/6030 [=====] - 1s 236us/sample - loss: 0.402
5 - accuracy: 0.8352
Epoch 99/500
6030/6030 [=====] - 2s 275us/sample - loss: 0.402
3 - accuracy: 0.8353
Epoch 100/500
6030/6030 [=====] - 1s 234us/sample - loss: 0.402
0 - accuracy: 0.8362
Epoch 101/500
6030/6030 [=====] - 2s 285us/sample - loss: 0.402
7 - accuracy: 0.8338
Epoch 102/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.402
3 - accuracy: 0.8358
Epoch 103/500
6030/6030 [=====] - 2s 254us/sample - loss: 0.402
2 - accuracy: 0.8345
Epoch 104/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.402
4 - accuracy: 0.8343
Epoch 105/500
6030/6030 [=====] - 2s 269us/sample - loss: 0.402
2 - accuracy: 0.8378
Epoch 106/500
6030/6030 [=====] - 2s 257us/sample - loss: 0.401
8 - accuracy: 0.8335
Epoch 107/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.402
2 - accuracy: 0.8347
Epoch 108/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.401
9 - accuracy: 0.8345
Epoch 109/500
6030/6030 [=====] - 2s 311us/sample - loss: 0.402
1 - accuracy: 0.8337
Epoch 110/500
6030/6030 [=====] - 2s 310us/sample - loss: 0.402
1 - accuracy: 0.8350
Epoch 111/500
6030/6030 [=====] - 2s 267us/sample - loss: 0.401
8 - accuracy: 0.8347
Epoch 112/500
6030/6030 [=====] - 2s 252us/sample - loss: 0.402
0 - accuracy: 0.8353
Epoch 113/500
6030/6030 [=====] - 2s 257us/sample - loss: 0.401
9 - accuracy: 0.8360
Epoch 114/500
6030/6030 [=====] - 2s 313us/sample - loss: 0.401
6 - accuracy: 0.8360
Epoch 115/500
6030/6030 [=====] - 2s 333us/sample - loss: 0.402
1 - accuracy: 0.8350
Epoch 116/500
6030/6030 [=====] - 2s 302us/sample - loss: 0.402
0 - accuracy: 0.8340
```

Epoch 117/500  
6030/6030 [=====] - 2s 332us/sample - loss: 0.401  
9 - accuracy: 0.8371  
Epoch 118/500  
6030/6030 [=====] - 2s 319us/sample - loss: 0.402  
0 - accuracy: 0.8352  
Epoch 119/500  
6030/6030 [=====] - 2s 340us/sample - loss: 0.401  
9 - accuracy: 0.8345  
Epoch 120/500  
6030/6030 [=====] - 1s 213us/sample - loss: 0.401  
6 - accuracy: 0.8347  
Epoch 121/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.401  
7 - accuracy: 0.8342  
Epoch 122/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.401  
7 - accuracy: 0.8353  
Epoch 123/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.401  
8 - accuracy: 0.8342  
Epoch 124/500  
6030/6030 [=====] - 1s 227us/sample - loss: 0.401  
9 - accuracy: 0.8342  
Epoch 125/500  
6030/6030 [=====] - 1s 229us/sample - loss: 0.401  
7 - accuracy: 0.8360  
Epoch 126/500  
6030/6030 [=====] - 1s 239us/sample - loss: 0.401  
6 - accuracy: 0.8333  
Epoch 127/500  
6030/6030 [=====] - 1s 247us/sample - loss: 0.401  
4 - accuracy: 0.8353  
Epoch 128/500  
6030/6030 [=====] - 1s 233us/sample - loss: 0.401  
3 - accuracy: 0.8337  
Epoch 129/500  
6030/6030 [=====] - ETA: 0s - loss: 0.4016 - accuracy: 0.83 - 1s 244us/sample - loss: 0.4018 - accuracy: 0.8345  
Epoch 130/500  
6030/6030 [=====] - 1s 247us/sample - loss: 0.401  
6 - accuracy: 0.8345  
Epoch 131/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.401  
4 - accuracy: 0.8350  
Epoch 132/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.402  
0 - accuracy: 0.8332  
Epoch 133/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.401  
3 - accuracy: 0.8338  
Epoch 134/500  
6030/6030 [=====] - 2s 293us/sample - loss: 0.401  
2 - accuracy: 0.8357  
Epoch 135/500  
6030/6030 [=====] - 1s 230us/sample - loss: 0.401  
6 - accuracy: 0.8352  
Epoch 136/500  
6030/6030 [=====] - 1s 240us/sample - loss: 0.401  
4 - accuracy: 0.8340 - loss: 0.4007 -  
Epoch 137/500

```
6030/6030 [=====] - 2s 295us/sample - loss: 0.401
5 - accuracy: 0.8350
Epoch 138/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.401
2 - accuracy: 0.8327
Epoch 139/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.401
5 - accuracy: 0.8337
Epoch 140/500
6030/6030 [=====] - 1s 236us/sample - loss: 0.401
3 - accuracy: 0.8353
Epoch 141/500
6030/6030 [=====] - 2s 270us/sample - loss: 0.401
5 - accuracy: 0.8350
Epoch 142/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.401
1 - accuracy: 0.8337
Epoch 143/500
6030/6030 [=====] - 2s 267us/sample - loss: 0.401
2 - accuracy: 0.8347
Epoch 144/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.401
5 - accuracy: 0.8343
Epoch 145/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.401
5 - accuracy: 0.8342
Epoch 146/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.400
9 - accuracy: 0.8345
Epoch 147/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.401
5 - accuracy: 0.8360
Epoch 148/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.401
4 - accuracy: 0.8342
Epoch 149/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.401
4 - accuracy: 0.8338
Epoch 150/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.401
3 - accuracy: 0.8323
Epoch 151/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.401
1 - accuracy: 0.8348
Epoch 152/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.400
9 - accuracy: 0.8348
Epoch 153/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.401
5 - accuracy: 0.8337
Epoch 154/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.401
3 - accuracy: 0.8362
Epoch 155/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.401
1 - accuracy: 0.8337
Epoch 156/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.400
8 - accuracy: 0.8347
Epoch 157/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.401
```

```
2 - accuracy: 0.8350
Epoch 158/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.400
8 - accuracy: 0.8332
Epoch 159/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.401
4 - accuracy: 0.8355
Epoch 160/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.400
8 - accuracy: 0.8347
Epoch 161/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.400
8 - accuracy: 0.8355
Epoch 162/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.400
9 - accuracy: 0.8340
Epoch 163/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.401
0 - accuracy: 0.8347
Epoch 164/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.400
8 - accuracy: 0.8347
Epoch 165/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.401
3 - accuracy: 0.8362
Epoch 166/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.400
3 - accuracy: 0.8342
Epoch 167/500
6030/6030 [=====] - ETA: 0s - loss: 0.4017 - accuracy: 0.83 - 1s 191us/sample - loss: 0.4013 - accuracy: 0.8357
Epoch 168/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.401
2 - accuracy: 0.8350
Epoch 169/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.401
0 - accuracy: 0.8350
Epoch 170/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.401
2 - accuracy: 0.8352
Epoch 171/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.400
9 - accuracy: 0.8357
Epoch 172/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.401
0 - accuracy: 0.8337
Epoch 173/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.401
2 - accuracy: 0.8357
Epoch 174/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.401
0 - accuracy: 0.8357
Epoch 175/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.400
9 - accuracy: 0.8355
Epoch 176/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.400
9 - accuracy: 0.8353
Epoch 177/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.400
9 - accuracy: 0.8352
```

Epoch 178/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.401  
0 - accuracy: 0.8340  
Epoch 179/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.401  
0 - accuracy: 0.8352  
Epoch 180/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.400  
7 - accuracy: 0.8348  
Epoch 181/500  
6030/6030 [=====] - 1s 228us/sample - loss: 0.400  
9 - accuracy: 0.8355  
Epoch 182/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.401  
0 - accuracy: 0.8348  
Epoch 183/500  
6030/6030 [=====] - 1s 215us/sample - loss: 0.400  
9 - accuracy: 0.8363  
Epoch 184/500  
6030/6030 [=====] - 1s 211us/sample - loss: 0.400  
8 - accuracy: 0.8347  
Epoch 185/500  
6030/6030 [=====] - 2s 258us/sample - loss: 0.400  
7 - accuracy: 0.8330  
Epoch 186/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.400  
5 - accuracy: 0.8345  
Epoch 187/500  
6030/6030 [=====] - 2s 294us/sample - loss: 0.401  
0 - accuracy: 0.8333  
Epoch 188/500  
6030/6030 [=====] - 2s 377us/sample - loss: 0.400  
4 - accuracy: 0.8360  
Epoch 189/500  
6030/6030 [=====] - 2s 310us/sample - loss: 0.400  
7 - accuracy: 0.8375  
Epoch 190/500  
6030/6030 [=====] - 2s 372us/sample - loss: 0.400  
7 - accuracy: 0.8355  
Epoch 191/500  
6030/6030 [=====] - 2s 285us/sample - loss: 0.400  
7 - accuracy: 0.8345  
Epoch 192/500  
6030/6030 [=====] - 2s 262us/sample - loss: 0.400  
1 - accuracy: 0.8347  
Epoch 193/500  
6030/6030 [=====] - 1s 241us/sample - loss: 0.400  
5 - accuracy: 0.8333  
Epoch 194/500  
6030/6030 [=====] - 2s 277us/sample - loss: 0.400  
6 - accuracy: 0.8343  
Epoch 195/500  
6030/6030 [=====] - 2s 365us/sample - loss: 0.400  
8 - accuracy: 0.8338  
Epoch 196/500  
6030/6030 [=====] - 2s 287us/sample - loss: 0.400  
0 - accuracy: 0.8350  
Epoch 197/500  
6030/6030 [=====] - 2s 284us/sample - loss: 0.400  
6 - accuracy: 0.8363  
Epoch 198/500



```
6030/6030 [=====] - 1s 197us/sample - loss: 0.400
3 - accuracy: 0.8347
Epoch 199/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.400
3 - accuracy: 0.8350
Epoch 200/500
6030/6030 [=====] - 2s 249us/sample - loss: 0.400
1 - accuracy: 0.8343
Epoch 201/500
6030/6030 [=====] - 1s 224us/sample - loss: 0.400
4 - accuracy: 0.8338
Epoch 202/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.400
1 - accuracy: 0.8348
Epoch 203/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.400
1 - accuracy: 0.8345
Epoch 204/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.399
6 - accuracy: 0.8338
Epoch 205/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.400
3 - accuracy: 0.8357
Epoch 206/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.399
9 - accuracy: 0.8345
Epoch 207/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.399
6 - accuracy: 0.8343
Epoch 208/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.399
9 - accuracy: 0.8337
Epoch 209/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.400
1 - accuracy: 0.8328
Epoch 210/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.399
5 - accuracy: 0.8345
Epoch 211/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.399
6 - accuracy: 0.8348
Epoch 212/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.399
9 - accuracy: 0.8328
Epoch 213/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.399
6 - accuracy: 0.8323
Epoch 214/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.399
6 - accuracy: 0.8348
Epoch 215/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.399
6 - accuracy: 0.8348
Epoch 216/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.399
7 - accuracy: 0.8333
Epoch 217/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.399
7 - accuracy: 0.8343
Epoch 218/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.399
```

```
4 - accuracy: 0.8337
Epoch 219/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.399
2 - accuracy: 0.8343
Epoch 220/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.399
1 - accuracy: 0.8350
Epoch 221/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.399
2 - accuracy: 0.8343
Epoch 222/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.399
4 - accuracy: 0.8342
Epoch 223/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.399
3 - accuracy: 0.8350
Epoch 224/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.399
0 - accuracy: 0.8350
Epoch 225/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.399
2 - accuracy: 0.8327
Epoch 226/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.398
9 - accuracy: 0.8352
Epoch 227/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.398
8 - accuracy: 0.8335
Epoch 228/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.398
8 - accuracy: 0.8345
Epoch 229/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.398
9 - accuracy: 0.8352
Epoch 230/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.399
1 - accuracy: 0.8337
Epoch 231/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.398
8 - accuracy: 0.8343
Epoch 232/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.398
9 - accuracy: 0.8343
Epoch 233/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.398
6 - accuracy: 0.8345
Epoch 234/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.398
7 - accuracy: 0.8335
Epoch 235/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.398
9 - accuracy: 0.8328
Epoch 236/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.398
3 - accuracy: 0.8347
Epoch 237/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.398
6 - accuracy: 0.8345
Epoch 238/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.398
5 - accuracy: 0.8317
```

Epoch 239/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.398  
1 - accuracy: 0.8343

Epoch 240/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.398  
4 - accuracy: 0.8367

Epoch 241/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.398  
4 - accuracy: 0.8347

Epoch 242/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.398  
4 - accuracy: 0.8345

Epoch 243/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.398  
1 - accuracy: 0.8353

Epoch 244/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.398  
1 - accuracy: 0.8340

Epoch 245/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.398  
2 - accuracy: 0.8335

Epoch 246/500  
6030/6030 [=====] - 1s 223us/sample - loss: 0.398  
4 - accuracy: 0.8327

Epoch 247/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.398  
0 - accuracy: 0.8347

Epoch 248/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.398  
3 - accuracy: 0.8337

Epoch 249/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.398  
0 - accuracy: 0.8338

Epoch 250/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.398  
3 - accuracy: 0.8348

Epoch 251/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.398  
4 - accuracy: 0.8342

Epoch 252/500  
6030/6030 [=====] - 2s 307us/sample - loss: 0.397  
7 - accuracy: 0.8342

Epoch 253/500  
6030/6030 [=====] - 2s 260us/sample - loss: 0.398  
1 - accuracy: 0.8343

Epoch 254/500  
6030/6030 [=====] - 2s 251us/sample - loss: 0.398  
0 - accuracy: 0.8330

Epoch 255/500  
6030/6030 [=====] - 1s 234us/sample - loss: 0.398  
3 - accuracy: 0.8333

Epoch 256/500  
6030/6030 [=====] - 1s 239us/sample - loss: 0.397  
9 - accuracy: 0.8350

Epoch 257/500  
6030/6030 [=====] - 1s 213us/sample - loss: 0.398  
3 - accuracy: 0.8323

Epoch 258/500  
6030/6030 [=====] - 1s 212us/sample - loss: 0.397  
9 - accuracy: 0.8332

Epoch 259/500

```
6030/6030 [=====] - 2s 284us/sample - loss: 0.397
9 - accuracy: 0.8348
Epoch 260/500
6030/6030 [=====] - 1s 248us/sample - loss: 0.397
5 - accuracy: 0.8338
Epoch 261/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.397
7 - accuracy: 0.8345
Epoch 262/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.398
2 - accuracy: 0.8335
Epoch 263/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.397
9 - accuracy: 0.8347
Epoch 264/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.397
7 - accuracy: 0.8343
Epoch 265/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.398
0 - accuracy: 0.8330
Epoch 266/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.397
3 - accuracy: 0.8367
Epoch 267/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.397
6 - accuracy: 0.8342
Epoch 268/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.397
8 - accuracy: 0.8343
Epoch 269/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.397
7 - accuracy: 0.8333
Epoch 270/500
6030/6030 [=====] - 2s 292us/sample - loss: 0.397
5 - accuracy: 0.8350
Epoch 271/500
6030/6030 [=====] - 1s 240us/sample - loss: 0.397
7 - accuracy: 0.8332
Epoch 272/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.397
6 - accuracy: 0.8332
Epoch 273/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.397
2 - accuracy: 0.8348
Epoch 274/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.397
4 - accuracy: 0.8333
Epoch 275/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.397
5 - accuracy: 0.8338
Epoch 276/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.397
7 - accuracy: 0.8342
Epoch 277/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.397
2 - accuracy: 0.8353
Epoch 278/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.397
4 - accuracy: 0.8352
Epoch 279/500
6030/6030 [=====] - 1s 248us/sample - loss: 0.397
```

```
4 - accuracy: 0.8325
Epoch 280/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.396
7 - accuracy: 0.8348
Epoch 281/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.397
2 - accuracy: 0.8333
Epoch 282/500
6030/6030 [=====] - ETA: 0s - loss: 0.3968 - accuracy: 0.83 - 2s 264us/sample - loss: 0.3969 - accuracy: 0.8342
Epoch 283/500
6030/6030 [=====] - 2s 285us/sample - loss: 0.397
4 - accuracy: 0.8352
Epoch 284/500
6030/6030 [=====] - 2s 324us/sample - loss: 0.397
2 - accuracy: 0.8353
Epoch 285/500
6030/6030 [=====] - 2s 257us/sample - loss: 0.397
4 - accuracy: 0.8332
Epoch 286/500
6030/6030 [=====] - 1s 238us/sample - loss: 0.397
1 - accuracy: 0.8342
Epoch 287/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.397
3 - accuracy: 0.8347
Epoch 288/500
6030/6030 [=====] - 2s 354us/sample - loss: 0.397
2 - accuracy: 0.8347
Epoch 289/500
6030/6030 [=====] - 2s 317us/sample - loss: 0.396
9 - accuracy: 0.8350
Epoch 290/500
6030/6030 [=====] - 2s 273us/sample - loss: 0.396
8 - accuracy: 0.8330
Epoch 291/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.397
2 - accuracy: 0.8342
Epoch 292/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.397
4 - accuracy: 0.8335
Epoch 293/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.397
0 - accuracy: 0.8337
Epoch 294/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.397
5 - accuracy: 0.8320
Epoch 295/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.396
8 - accuracy: 0.8327
Epoch 296/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.397
1 - accuracy: 0.8335
Epoch 297/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.397
0 - accuracy: 0.8340
Epoch 298/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.396
8 - accuracy: 0.8338
Epoch 299/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.397
0 - accuracy: 0.8327
```

Epoch 300/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.397  
1 - accuracy: 0.8335  
Epoch 301/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.397  
1 - accuracy: 0.8352  
Epoch 302/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.397  
1 - accuracy: 0.8318  
Epoch 303/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.396  
8 - accuracy: 0.8330  
Epoch 304/500  
6030/6030 [=====] - 2s 301us/sample - loss: 0.397  
2 - accuracy: 0.8355  
Epoch 305/500  
6030/6030 [=====] - 2s 289us/sample - loss: 0.396  
8 - accuracy: 0.8348  
Epoch 306/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.397  
0 - accuracy: 0.8345  
Epoch 307/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.396  
6 - accuracy: 0.8332  
Epoch 308/500  
6030/6030 [=====] - 1s 223us/sample - loss: 0.396  
6 - accuracy: 0.8328  
Epoch 309/500  
6030/6030 [=====] - 1s 215us/sample - loss: 0.396  
9 - accuracy: 0.8312  
Epoch 310/500  
6030/6030 [=====] - 1s 217us/sample - loss: 0.396  
9 - accuracy: 0.8355  
Epoch 311/500  
6030/6030 [=====] - 1s 186us/sample - loss: 0.396  
3 - accuracy: 0.8338  
Epoch 312/500  
6030/6030 [=====] - 1s 228us/sample - loss: 0.396  
6 - accuracy: 0.8320  
Epoch 313/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.396  
7 - accuracy: 0.8325  
Epoch 314/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.397  
1 - accuracy: 0.8343  
Epoch 315/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.396  
5 - accuracy: 0.8337  
Epoch 316/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.396  
6 - accuracy: 0.8343  
Epoch 317/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.396  
3 - accuracy: 0.8348  
Epoch 318/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.396  
6 - accuracy: 0.8337  
Epoch 319/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.396  
7 - accuracy: 0.8338  
Epoch 320/500

```
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
8 - accuracy: 0.8342
Epoch 321/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.396
8 - accuracy: 0.8348
Epoch 322/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
8 - accuracy: 0.8330
Epoch 323/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.396
2 - accuracy: 0.8350
Epoch 324/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.397
0 - accuracy: 0.8348
Epoch 325/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.396
2 - accuracy: 0.8340
Epoch 326/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.396
7 - accuracy: 0.8350
Epoch 327/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.396
2 - accuracy: 0.8322
Epoch 328/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.396
6 - accuracy: 0.8352
Epoch 329/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.396
8 - accuracy: 0.8350
Epoch 330/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.396
6 - accuracy: 0.8333
Epoch 331/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.396
8 - accuracy: 0.8342
Epoch 332/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.396
4 - accuracy: 0.8340
Epoch 333/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.396
5 - accuracy: 0.8340
Epoch 334/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.396
7 - accuracy: 0.8345
Epoch 335/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.396
6 - accuracy: 0.8333
Epoch 336/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.396
6 - accuracy: 0.8328
Epoch 337/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.396
7 - accuracy: 0.8338
Epoch 338/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.396
6 - accuracy: 0.8340
Epoch 339/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.396
4 - accuracy: 0.8355
Epoch 340/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.396
```

```
6 - accuracy: 0.8353
Epoch 341/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.396
6 - accuracy: 0.8350
Epoch 342/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.396
6 - accuracy: 0.8347
Epoch 343/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.396
5 - accuracy: 0.8328
Epoch 344/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.396
3 - accuracy: 0.8330
Epoch 345/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.396
0 - accuracy: 0.8328
Epoch 346/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.396
5 - accuracy: 0.8357
Epoch 347/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.396
2 - accuracy: 0.8350
Epoch 348/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.396
1 - accuracy: 0.8340
Epoch 349/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.396
3 - accuracy: 0.8342
Epoch 350/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.396
3 - accuracy: 0.8350
Epoch 351/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.396
1 - accuracy: 0.8337
Epoch 352/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.396
4 - accuracy: 0.8345
Epoch 353/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.396
3 - accuracy: 0.8352
Epoch 354/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.396
2 - accuracy: 0.8358
Epoch 355/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.396
4 - accuracy: 0.8353
Epoch 356/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.395
9 - accuracy: 0.8348
Epoch 357/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.396
0 - accuracy: 0.8350
Epoch 358/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.396
3 - accuracy: 0.8348
Epoch 359/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.396
3 - accuracy: 0.8350 - los
Epoch 360/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.395
7 - accuracy: 0.8352
```



Epoch 361/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.396  
2 - accuracy: 0.8350  
Epoch 362/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.396  
2 - accuracy: 0.8360  
Epoch 363/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.396  
5 - accuracy: 0.8343  
Epoch 364/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.396  
4 - accuracy: 0.8332  
Epoch 365/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.396  
3 - accuracy: 0.8330  
Epoch 366/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.396  
1 - accuracy: 0.8348  
Epoch 367/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.396  
0 - accuracy: 0.8340  
Epoch 368/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.396  
7 - accuracy: 0.8352  
Epoch 369/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.396  
2 - accuracy: 0.8357  
Epoch 370/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.396  
1 - accuracy: 0.8335  
Epoch 371/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.396  
3 - accuracy: 0.8343  
Epoch 372/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.396  
3 - accuracy: 0.8347  
Epoch 373/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.395  
6 - accuracy: 0.8330  
Epoch 374/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.395  
8 - accuracy: 0.8360  
Epoch 375/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.396  
3 - accuracy: 0.8345  
Epoch 376/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.396  
2 - accuracy: 0.8340  
Epoch 377/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.396  
1 - accuracy: 0.8335  
Epoch 378/500  
6030/6030 [=====] - 1s 181us/sample - loss: 0.395  
9 - accuracy: 0.8340  
Epoch 379/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.396  
4 - accuracy: 0.8343  
Epoch 380/500  
6030/6030 [=====] - 1s 214us/sample - loss: 0.396  
0 - accuracy: 0.8347  
Epoch 381/500

```
6030/6030 [=====] - 1s 213us/sample - loss: 0.396
1 - accuracy: 0.8342
Epoch 382/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.396
0 - accuracy: 0.8318
Epoch 383/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.396
2 - accuracy: 0.8338
Epoch 384/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.396
3 - accuracy: 0.8343
Epoch 385/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.396
0 - accuracy: 0.8350
Epoch 386/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.396
3 - accuracy: 0.8333
Epoch 387/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.396
4 - accuracy: 0.8338
Epoch 388/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.396
1 - accuracy: 0.8348
Epoch 389/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.395
7 - accuracy: 0.8348
Epoch 390/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.396
3 - accuracy: 0.8350
Epoch 391/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.396
2 - accuracy: 0.8342
Epoch 392/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.396
1 - accuracy: 0.8347
Epoch 393/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.395
5 - accuracy: 0.8343
Epoch 394/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.395
8 - accuracy: 0.8350
Epoch 395/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.396
0 - accuracy: 0.8348
Epoch 396/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.396
2 - accuracy: 0.8352
Epoch 397/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.395
7 - accuracy: 0.8333
Epoch 398/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.395
4 - accuracy: 0.8352
Epoch 399/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.395
9 - accuracy: 0.8348
Epoch 400/500
6030/6030 [=====] - 1s 245us/sample - loss: 0.395
9 - accuracy: 0.8353
Epoch 401/500
6030/6030 [=====] - ETA: 0s - loss: 0.3978 - accu
```

racy: 0.83 - 1s 248us/sample - loss: 0.3963 - accuracy: 0.8357  
Epoch 402/500  
6030/6030 [=====] - 1s 241us/sample - loss: 0.395  
9 - accuracy: 0.8335  
Epoch 403/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.395  
5 - accuracy: 0.8358  
Epoch 404/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.396  
0 - accuracy: 0.8340  
Epoch 405/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.395  
4 - accuracy: 0.8371  
Epoch 406/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.396  
0 - accuracy: 0.8342  
Epoch 407/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.395  
6 - accuracy: 0.8357  
Epoch 408/500  
6030/6030 [=====] - 1s 195us/sample - loss: 0.395  
8 - accuracy: 0.8342  
Epoch 409/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.395  
9 - accuracy: 0.8323  
Epoch 410/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.395  
5 - accuracy: 0.8362  
Epoch 411/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.396  
3 - accuracy: 0.8345  
Epoch 412/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.395  
7 - accuracy: 0.8350  
Epoch 413/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.395  
9 - accuracy: 0.8343  
Epoch 414/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.396  
0 - accuracy: 0.8371  
Epoch 415/500  
6030/6030 [=====] - 2s 345us/sample - loss: 0.395  
7 - accuracy: 0.8350  
Epoch 416/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.395  
5 - accuracy: 0.8363  
Epoch 417/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.396  
1 - accuracy: 0.8348  
Epoch 418/500  
6030/6030 [=====] - 1s 229us/sample - loss: 0.396  
1 - accuracy: 0.8357  
Epoch 419/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.395  
9 - accuracy: 0.8332  
Epoch 420/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.395  
9 - accuracy: 0.8343  
Epoch 421/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.396  
0 - accuracy: 0.8355

Epoch 422/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.395  
7 - accuracy: 0.8332  
Epoch 423/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.395  
9 - accuracy: 0.8352  
Epoch 424/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.395  
6 - accuracy: 0.8355  
Epoch 425/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.395  
4 - accuracy: 0.8342  
Epoch 426/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.395  
6 - accuracy: 0.8357  
Epoch 427/500  
6030/6030 [=====] - 1s 197us/sample - loss: 0.396  
1 - accuracy: 0.8355  
Epoch 428/500  
6030/6030 [=====] - 1s 231us/sample - loss: 0.395  
5 - accuracy: 0.8358  
Epoch 429/500  
6030/6030 [=====] - 2s 276us/sample - loss: 0.395  
9 - accuracy: 0.8376  
Epoch 430/500  
6030/6030 [=====] - 2s 352us/sample - loss: 0.395  
8 - accuracy: 0.8357  
Epoch 431/500  
6030/6030 [=====] - 2s 381us/sample - loss: 0.395  
8 - accuracy: 0.8355  
Epoch 432/500  
6030/6030 [=====] - 2s 374us/sample - loss: 0.395  
6 - accuracy: 0.8345  
Epoch 433/500  
6030/6030 [=====] - 2s 307us/sample - loss: 0.395  
6 - accuracy: 0.8353  
Epoch 434/500  
6030/6030 [=====] - 2s 260us/sample - loss: 0.395  
9 - accuracy: 0.8350  
Epoch 435/500  
6030/6030 [=====] - 3s 459us/sample - loss: 0.395  
6 - accuracy: 0.8343  
Epoch 436/500  
6030/6030 [=====] - 3s 471us/sample - loss: 0.395  
9 - accuracy: 0.8345 - loss: 0.3972 - accuracy:  
Epoch 437/500  
6030/6030 [=====] - 3s 517us/sample - loss: 0.395  
6 - accuracy: 0.8347  
Epoch 438/500  
6030/6030 [=====] - 2s 413us/sample - loss: 0.395  
7 - accuracy: 0.8353  
Epoch 439/500  
6030/6030 [=====] - 2s 361us/sample - loss: 0.396  
0 - accuracy: 0.8352  
Epoch 440/500  
6030/6030 [=====] - 2s 383us/sample - loss: 0.395  
3 - accuracy: 0.8343  
Epoch 441/500  
6030/6030 [=====] - 2s 341us/sample - loss: 0.395  
4 - accuracy: 0.8335  
Epoch 442/500

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6030/6030 [=====] - 2s 274us/sample - loss: 0.395
4 - accuracy: 0.8347
Epoch 443/500
6030/6030 [=====] - ETA: 0s - loss: 0.3956 - accu
racy: 0.83 - 2s 277us/sample - loss: 0.3953 - accuracy: 0.8348
Epoch 444/500
6030/6030 [=====] - 2s 279us/sample - loss: 0.395
7 - accuracy: 0.8342
Epoch 445/500
6030/6030 [=====] - 1s 243us/sample - loss: 0.395
3 - accuracy: 0.8353
Epoch 446/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.395
6 - accuracy: 0.8358
Epoch 447/500
6030/6030 [=====] - 2s 252us/sample - loss: 0.395
6 - accuracy: 0.8327
Epoch 448/500
6030/6030 [=====] - 1s 239us/sample - loss: 0.395
6 - accuracy: 0.8345
Epoch 449/500
6030/6030 [=====] - 2s 262us/sample - loss: 0.395
7 - accuracy: 0.8357
Epoch 450/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.395
7 - accuracy: 0.8342
Epoch 451/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.395
7 - accuracy: 0.8355
Epoch 452/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.395
6 - accuracy: 0.8340
Epoch 453/500
6030/6030 [=====] - 2s 294us/sample - loss: 0.395
0 - accuracy: 0.8343
Epoch 454/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.396
1 - accuracy: 0.8350
Epoch 455/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.395
6 - accuracy: 0.8368
Epoch 456/500
6030/6030 [=====] - 1s 240us/sample - loss: 0.395
4 - accuracy: 0.8363
Epoch 457/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.395
4 - accuracy: 0.8353
Epoch 458/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.395
5 - accuracy: 0.8360
Epoch 459/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.395
5 - accuracy: 0.8353
Epoch 460/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.395
6 - accuracy: 0.8347
Epoch 461/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.395
3 - accuracy: 0.8325
Epoch 462/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.395
```

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4 - accuracy: 0.8347
Epoch 463/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.395
0 - accuracy: 0.8355
Epoch 464/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.395
1 - accuracy: 0.8342
Epoch 465/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.395
3 - accuracy: 0.8352
Epoch 466/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.395
5 - accuracy: 0.8371
Epoch 467/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.395
3 - accuracy: 0.8338
Epoch 468/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.395
0 - accuracy: 0.8348
Epoch 469/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.395
3 - accuracy: 0.8381
Epoch 470/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.395
3 - accuracy: 0.8345
Epoch 471/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.395
1 - accuracy: 0.8340
Epoch 472/500
6030/6030 [=====] - 2s 258us/sample - loss: 0.395
1 - accuracy: 0.8360
Epoch 473/500
6030/6030 [=====] - 1s 243us/sample - loss: 0.395
4 - accuracy: 0.8355
Epoch 474/500
6030/6030 [=====] - 2s 353us/sample - loss: 0.395
2 - accuracy: 0.8343
Epoch 475/500
6030/6030 [=====] - 2s 252us/sample - loss: 0.395
4 - accuracy: 0.8347
Epoch 476/500
6030/6030 [=====] - 2s 343us/sample - loss: 0.395
5 - accuracy: 0.8337
Epoch 477/500
6030/6030 [=====] - 2s 375us/sample - loss: 0.395
3 - accuracy: 0.8353 - loss: 0.3852 - accuracy: 0.84 - ETA: 0s - loss: 0.3
Epoch 478/500
6030/6030 [=====] - 2s 329us/sample - loss: 0.395
5 - accuracy: 0.8358
Epoch 479/500
6030/6030 [=====] - 2s 253us/sample - loss: 0.394
9 - accuracy: 0.8353
Epoch 480/500
6030/6030 [=====] - 2s 254us/sample - loss: 0.395
5 - accuracy: 0.8362
Epoch 481/500
6030/6030 [=====] - 2s 283us/sample - loss: 0.395
4 - accuracy: 0.8368
Epoch 482/500
6030/6030 [=====] - 2s 266us/sample - loss: 0.395
4 - accuracy: 0.8357
```

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Epoch 483/500
6030/6030 [=====] - 2s 382us/sample - loss: 0.395
2 - accuracy: 0.8368
Epoch 484/500
6030/6030 [=====] - 3s 447us/sample - loss: 0.395
0 - accuracy: 0.8365
Epoch 485/500
6030/6030 [=====] - 2s 360us/sample - loss: 0.395
2 - accuracy: 0.8333
Epoch 486/500
6030/6030 [=====] - 2s 288us/sample - loss: 0.395
1 - accuracy: 0.8325
Epoch 487/500
6030/6030 [=====] - 2s 260us/sample - loss: 0.395
0 - accuracy: 0.8367
Epoch 488/500
6030/6030 [=====] - 2s 273us/sample - loss: 0.395
1 - accuracy: 0.8370
Epoch 489/500
6030/6030 [=====] - 2s 301us/sample - loss: 0.395
5 - accuracy: 0.8363
Epoch 490/500
6030/6030 [=====] - 2s 317us/sample - loss: 0.394
5 - accuracy: 0.8355
Epoch 491/500
6030/6030 [=====] - 2s 258us/sample - loss: 0.395
3 - accuracy: 0.8350
Epoch 492/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.394
9 - accuracy: 0.8338
Epoch 493/500
6030/6030 [=====] - 1s 248us/sample - loss: 0.395
4 - accuracy: 0.8370
Epoch 494/500
6030/6030 [=====] - 2s 311us/sample - loss: 0.393
7 - accuracy: 0.8350
Epoch 495/500
6030/6030 [=====] - 1s 245us/sample - loss: 0.394
9 - accuracy: 0.8352
Epoch 496/500
6030/6030 [=====] - 1s 233us/sample - loss: 0.394
8 - accuracy: 0.8350
Epoch 497/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.395
3 - accuracy: 0.8360
Epoch 498/500
6030/6030 [=====] - 1s 232us/sample - loss: 0.395
2 - accuracy: 0.8337
Epoch 499/500
6030/6030 [=====] - 1s 245us/sample - loss: 0.395
1 - accuracy: 0.8362
Epoch 500/500
6030/6030 [=====] - 2s 272us/sample - loss: 0.395
4 - accuracy: 0.8355
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 342us/sample - loss: 0.601
7 - accuracy: 0.7954
Epoch 2/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.444
2 - accuracy: 0.7954
```

Epoch 3/100  
6030/6030 [=====] - 1s 244us/sample - loss: 0.433  
6 - accuracy: 0.7954

Epoch 4/100  
6030/6030 [=====] - 1s 174us/sample - loss: 0.428  
4 - accuracy: 0.7954

Epoch 5/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.423  
9 - accuracy: 0.7954

Epoch 6/100  
6030/6030 [=====] - 2s 260us/sample - loss: 0.419  
7 - accuracy: 0.8100

Epoch 7/100  
6030/6030 [=====] - 1s 241us/sample - loss: 0.416  
5 - accuracy: 0.8294

Epoch 8/100  
6030/6030 [=====] - 1s 228us/sample - loss: 0.413  
1 - accuracy: 0.8322

Epoch 9/100  
6030/6030 [=====] - 1s 157us/sample - loss: 0.410  
2 - accuracy: 0.8327

Epoch 10/100  
6030/6030 [=====] - 1s 191us/sample - loss: 0.407  
7 - accuracy: 0.8328

Epoch 11/100  
6030/6030 [=====] - 1s 234us/sample - loss: 0.406  
3 - accuracy: 0.8315

Epoch 12/100  
6030/6030 [=====] - 1s 224us/sample - loss: 0.404  
4 - accuracy: 0.8332

Epoch 13/100  
6030/6030 [=====] - 1s 208us/sample - loss: 0.403  
1 - accuracy: 0.8323

Epoch 14/100  
6030/6030 [=====] - 1s 177us/sample - loss: 0.401  
8 - accuracy: 0.8342

Epoch 15/100  
6030/6030 [=====] - 1s 189us/sample - loss: 0.401  
0 - accuracy: 0.8323

Epoch 16/100  
6030/6030 [=====] - 1s 158us/sample - loss: 0.400  
0 - accuracy: 0.8335

Epoch 17/100  
6030/6030 [=====] - 1s 166us/sample - loss: 0.399  
2 - accuracy: 0.8342

Epoch 18/100  
6030/6030 [=====] - 1s 160us/sample - loss: 0.398  
7 - accuracy: 0.8343

Epoch 19/100  
6030/6030 [=====] - 1s 217us/sample - loss: 0.398  
0 - accuracy: 0.8353

Epoch 20/100  
6030/6030 [=====] - 1s 182us/sample - loss: 0.397  
5 - accuracy: 0.8342

Epoch 21/100  
6030/6030 [=====] - 1s 165us/sample - loss: 0.397  
3 - accuracy: 0.8347

Epoch 22/100  
6030/6030 [=====] - 1s 219us/sample - loss: 0.396  
7 - accuracy: 0.8340

Epoch 23/100



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6030/6030 [=====] - 1s 172us/sample - loss: 0.396
3 - accuracy: 0.8358
Epoch 24/100
6030/6030 [=====] - 1s 161us/sample - loss: 0.396
1 - accuracy: 0.8338
Epoch 25/100
6030/6030 [=====] - 1s 156us/sample - loss: 0.395
6 - accuracy: 0.8357
Epoch 26/100
6030/6030 [=====] - 1s 135us/sample - loss: 0.395
7 - accuracy: 0.8360
Epoch 27/100
6030/6030 [=====] - 1s 137us/sample - loss: 0.395
1 - accuracy: 0.8365
Epoch 28/100
6030/6030 [=====] - 1s 132us/sample - loss: 0.394
9 - accuracy: 0.8358
Epoch 29/100
6030/6030 [=====] - 1s 143us/sample - loss: 0.394
5 - accuracy: 0.8353
Epoch 30/100
6030/6030 [=====] - 1s 135us/sample - loss: 0.394
3 - accuracy: 0.8348
Epoch 31/100
6030/6030 [=====] - 1s 143us/sample - loss: 0.394
4 - accuracy: 0.8347
Epoch 32/100
6030/6030 [=====] - 1s 135us/sample - loss: 0.394
1 - accuracy: 0.8380
Epoch 33/100
6030/6030 [=====] - 1s 136us/sample - loss: 0.393
9 - accuracy: 0.8363
Epoch 34/100
6030/6030 [=====] - 1s 134us/sample - loss: 0.393
7 - accuracy: 0.8357
Epoch 35/100
6030/6030 [=====] - 1s 134us/sample - loss: 0.393
4 - accuracy: 0.8358
Epoch 36/100
6030/6030 [=====] - 1s 135us/sample - loss: 0.393
3 - accuracy: 0.8352
Epoch 37/100
6030/6030 [=====] - 1s 156us/sample - loss: 0.393
1 - accuracy: 0.8368
Epoch 38/100
6030/6030 [=====] - 1s 134us/sample - loss: 0.392
8 - accuracy: 0.8363
Epoch 39/100
6030/6030 [=====] - 1s 137us/sample - loss: 0.393
2 - accuracy: 0.8360
Epoch 40/100
6030/6030 [=====] - 1s 143us/sample - loss: 0.392
9 - accuracy: 0.8357 - loss: 0.3957 - accuracy: 0.83
Epoch 41/100
6030/6030 [=====] - 1s 158us/sample - loss: 0.392
1 - accuracy: 0.8371
Epoch 42/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.392
1 - accuracy: 0.8358
Epoch 43/100
6030/6030 [=====] - 1s 216us/sample - loss: 0.392
```

```
1 - accuracy: 0.8352
Epoch 44/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.392
1 - accuracy: 0.8373
Epoch 45/100
6030/6030 [=====] - 1s 155us/sample - loss: 0.392
2 - accuracy: 0.8370
Epoch 46/100
6030/6030 [=====] - 1s 150us/sample - loss: 0.391
7 - accuracy: 0.8363 - los
Epoch 47/100
6030/6030 [=====] - 1s 136us/sample - loss: 0.391
8 - accuracy: 0.8390
Epoch 48/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.391
4 - accuracy: 0.8378
Epoch 49/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.391
9 - accuracy: 0.8362
Epoch 50/100
6030/6030 [=====] - 1s 140us/sample - loss: 0.391
4 - accuracy: 0.8385
Epoch 51/100
6030/6030 [=====] - 1s 157us/sample - loss: 0.391
4 - accuracy: 0.8381
Epoch 52/100
6030/6030 [=====] - 1s 150us/sample - loss: 0.391
4 - accuracy: 0.8371
Epoch 53/100
6030/6030 [=====] - 1s 137us/sample - loss: 0.391
4 - accuracy: 0.8373
Epoch 54/100
6030/6030 [=====] - 1s 139us/sample - loss: 0.390
7 - accuracy: 0.8367
Epoch 55/100
6030/6030 [=====] - 1s 141us/sample - loss: 0.390
2 - accuracy: 0.8380
Epoch 56/100
6030/6030 [=====] - 1s 139us/sample - loss: 0.390
6 - accuracy: 0.8376
Epoch 57/100
6030/6030 [=====] - 1s 140us/sample - loss: 0.390
3 - accuracy: 0.8373 - loss: 0.3923 - ac
Epoch 58/100
6030/6030 [=====] - 1s 139us/sample - loss: 0.390
3 - accuracy: 0.8362
Epoch 59/100
6030/6030 [=====] - 1s 152us/sample - loss: 0.390
0 - accuracy: 0.8388
Epoch 60/100
6030/6030 [=====] - 1s 141us/sample - loss: 0.390
0 - accuracy: 0.8368
Epoch 61/100
6030/6030 [=====] - 1s 141us/sample - loss: 0.390
1 - accuracy: 0.8375
Epoch 62/100
6030/6030 [=====] - 1s 145us/sample - loss: 0.389
8 - accuracy: 0.8373
Epoch 63/100
6030/6030 [=====] - 1s 155us/sample - loss: 0.389
3 - accuracy: 0.8390
```

Epoch 64/100  
6030/6030 [=====] - 1s 155us/sample - loss: 0.389  
2 - accuracy: 0.8360  
Epoch 65/100  
6030/6030 [=====] - 1s 165us/sample - loss: 0.388  
9 - accuracy: 0.8365  
Epoch 66/100  
6030/6030 [=====] - 1s 139us/sample - loss: 0.388  
9 - accuracy: 0.8373  
Epoch 67/100  
6030/6030 [=====] - 1s 136us/sample - loss: 0.388  
9 - accuracy: 0.8362  
Epoch 68/100  
6030/6030 [=====] - 1s 138us/sample - loss: 0.388  
7 - accuracy: 0.8371  
Epoch 69/100  
6030/6030 [=====] - 1s 137us/sample - loss: 0.388  
3 - accuracy: 0.8391  
Epoch 70/100  
6030/6030 [=====] - 1s 133us/sample - loss: 0.388  
8 - accuracy: 0.8380  
Epoch 71/100  
6030/6030 [=====] - 1s 139us/sample - loss: 0.388  
6 - accuracy: 0.8365  
Epoch 72/100  
6030/6030 [=====] - 1s 190us/sample - loss: 0.388  
3 - accuracy: 0.8373  
Epoch 73/100  
6030/6030 [=====] - 1s 208us/sample - loss: 0.388  
4 - accuracy: 0.8381 - loss: 0.3862 - accuracy: 0.  
Epoch 74/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.388  
1 - accuracy: 0.8376  
Epoch 75/100  
6030/6030 [=====] - ETA: 0s - loss: 0.3906 - accuracy: 0.83 - 1s 173us/sample - loss: 0.3879 - accuracy: 0.8371  
Epoch 76/100  
6030/6030 [=====] - 1s 180us/sample - loss: 0.388  
0 - accuracy: 0.8381  
Epoch 77/100  
6030/6030 [=====] - 1s 185us/sample - loss: 0.387  
9 - accuracy: 0.8381  
Epoch 78/100  
6030/6030 [=====] - 1s 192us/sample - loss: 0.388  
1 - accuracy: 0.8376  
Epoch 79/100  
6030/6030 [=====] - 1s 218us/sample - loss: 0.387  
8 - accuracy: 0.8388  
Epoch 80/100  
6030/6030 [=====] - 1s 167us/sample - loss: 0.387  
8 - accuracy: 0.8376  
Epoch 81/100  
6030/6030 [=====] - 1s 163us/sample - loss: 0.387  
9 - accuracy: 0.8380  
Epoch 82/100  
6030/6030 [=====] - 1s 180us/sample - loss: 0.387  
9 - accuracy: 0.8365  
Epoch 83/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.387  
8 - accuracy: 0.8383  
Epoch 84/100

```
6030/6030 [=====] - 1s 247us/sample - loss: 0.387
3 - accuracy: 0.8385
Epoch 85/100
6030/6030 [=====] - 2s 257us/sample - loss: 0.387
4 - accuracy: 0.8371
Epoch 86/100
6030/6030 [=====] - 1s 238us/sample - loss: 0.387
3 - accuracy: 0.8370
Epoch 87/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.387
5 - accuracy: 0.8378
Epoch 88/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.387
4 - accuracy: 0.8363
Epoch 89/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.386
5 - accuracy: 0.8370
Epoch 90/100
6030/6030 [=====] - 1s 218us/sample - loss: 0.386
8 - accuracy: 0.8380
Epoch 91/100
6030/6030 [=====] - 1s 246us/sample - loss: 0.386
9 - accuracy: 0.8375
Epoch 92/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.386
8 - accuracy: 0.8378
Epoch 93/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.386
9 - accuracy: 0.8375
Epoch 94/100
6030/6030 [=====] - 1s 146us/sample - loss: 0.386
8 - accuracy: 0.8390
Epoch 95/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.387
0 - accuracy: 0.8376
Epoch 96/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.386
6 - accuracy: 0.8386
Epoch 97/100
6030/6030 [=====] - 1s 234us/sample - loss: 0.386
7 - accuracy: 0.8371
Epoch 98/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.386
7 - accuracy: 0.8390
Epoch 99/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.386
4 - accuracy: 0.8401
Epoch 100/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.386
5 - accuracy: 0.8388
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 250us/sample - loss: 0.617
3 - accuracy: 0.7889
Epoch 2/100
6030/6030 [=====] - 1s 144us/sample - loss: 0.451
7 - accuracy: 0.7910
Epoch 3/100
6030/6030 [=====] - 1s 150us/sample - loss: 0.441
5 - accuracy: 0.7910
Epoch 4/100
```

```
6030/6030 [=====] - 1s 199us/sample - loss: 0.437
8 - accuracy: 0.7910
Epoch 5/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.435
8 - accuracy: 0.7910
Epoch 6/100
6030/6030 [=====] - 1s 148us/sample - loss: 0.434
2 - accuracy: 0.7910
Epoch 7/100
6030/6030 [=====] - 1s 142us/sample - loss: 0.432
7 - accuracy: 0.7910
Epoch 8/100
6030/6030 [=====] - 1s 140us/sample - loss: 0.431
1 - accuracy: 0.7910
Epoch 9/100
6030/6030 [=====] - 1s 139us/sample - loss: 0.429
2 - accuracy: 0.7910
Epoch 10/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.426
8 - accuracy: 0.8003
Epoch 11/100
6030/6030 [=====] - 1s 155us/sample - loss: 0.423
0 - accuracy: 0.8209
Epoch 12/100
6030/6030 [=====] - 1s 142us/sample - loss: 0.419
7 - accuracy: 0.8240
Epoch 13/100
6030/6030 [=====] - 1s 139us/sample - loss: 0.416
9 - accuracy: 0.8277
Epoch 14/100
6030/6030 [=====] - 1s 141us/sample - loss: 0.414
8 - accuracy: 0.8277
Epoch 15/100
6030/6030 [=====] - 1s 139us/sample - loss: 0.412
7 - accuracy: 0.8277
Epoch 16/100
6030/6030 [=====] - 1s 134us/sample - loss: 0.411
3 - accuracy: 0.8280
Epoch 17/100
6030/6030 [=====] - 1s 139us/sample - loss: 0.410
1 - accuracy: 0.8284
Epoch 18/100
6030/6030 [=====] - 1s 139us/sample - loss: 0.409
1 - accuracy: 0.8290
Epoch 19/100
6030/6030 [=====] - 1s 144us/sample - loss: 0.408
3 - accuracy: 0.8287
Epoch 20/100
6030/6030 [=====] - 1s 140us/sample - loss: 0.407
6 - accuracy: 0.8297
Epoch 21/100
6030/6030 [=====] - 1s 140us/sample - loss: 0.407
0 - accuracy: 0.8284
Epoch 22/100
6030/6030 [=====] - 1s 139us/sample - loss: 0.406
7 - accuracy: 0.8289
Epoch 23/100
6030/6030 [=====] - 1s 138us/sample - loss: 0.406
1 - accuracy: 0.8303
Epoch 24/100
6030/6030 [=====] - 1s 136us/sample - loss: 0.405
```

```
7 - accuracy: 0.8294
Epoch 25/100
6030/6030 [=====] - 1s 138us/sample - loss: 0.405
5 - accuracy: 0.8272
Epoch 26/100
6030/6030 [=====] - 1s 138us/sample - loss: 0.404
7 - accuracy: 0.8295
Epoch 27/100
6030/6030 [=====] - 1s 138us/sample - loss: 0.405
0 - accuracy: 0.8290
Epoch 28/100
6030/6030 [=====] - 1s 138us/sample - loss: 0.404
3 - accuracy: 0.8303
Epoch 29/100
6030/6030 [=====] - 1s 137us/sample - loss: 0.404
2 - accuracy: 0.8292
Epoch 30/100
6030/6030 [=====] - 1s 140us/sample - loss: 0.404
0 - accuracy: 0.8318
Epoch 31/100
6030/6030 [=====] - 1s 138us/sample - loss: 0.403
7 - accuracy: 0.8300
Epoch 32/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.403
1 - accuracy: 0.8312
Epoch 33/100
6030/6030 [=====] - 1s 152us/sample - loss: 0.402
9 - accuracy: 0.8312
Epoch 34/100
6030/6030 [=====] - 1s 161us/sample - loss: 0.402
7 - accuracy: 0.8310
Epoch 35/100
6030/6030 [=====] - 1s 157us/sample - loss: 0.402
7 - accuracy: 0.8300
Epoch 36/100
6030/6030 [=====] - 1s 155us/sample - loss: 0.402
6 - accuracy: 0.8317
Epoch 37/100
6030/6030 [=====] - 1s 146us/sample - loss: 0.402
2 - accuracy: 0.8300
Epoch 38/100
6030/6030 [=====] - 1s 136us/sample - loss: 0.402
0 - accuracy: 0.8305
Epoch 39/100
6030/6030 [=====] - 1s 139us/sample - loss: 0.402
1 - accuracy: 0.8308
Epoch 40/100
6030/6030 [=====] - 1s 137us/sample - loss: 0.401
6 - accuracy: 0.8295
Epoch 41/100
6030/6030 [=====] - 1s 138us/sample - loss: 0.401
5 - accuracy: 0.8308
Epoch 42/100
6030/6030 [=====] - 1s 136us/sample - loss: 0.401
2 - accuracy: 0.8303
Epoch 43/100
6030/6030 [=====] - 1s 160us/sample - loss: 0.401
3 - accuracy: 0.8310
Epoch 44/100
6030/6030 [=====] - 1s 141us/sample - loss: 0.401
3 - accuracy: 0.8303
```

Epoch 45/100  
6030/6030 [=====] - 1s 139us/sample - loss: 0.401  
1 - accuracy: 0.8305  
Epoch 46/100  
6030/6030 [=====] - 1s 144us/sample - loss: 0.400  
9 - accuracy: 0.8299  
Epoch 47/100  
6030/6030 [=====] - 1s 143us/sample - loss: 0.400  
5 - accuracy: 0.8308  
Epoch 48/100  
6030/6030 [=====] - 1s 137us/sample - loss: 0.400  
8 - accuracy: 0.8303  
Epoch 49/100  
6030/6030 [=====] - 1s 138us/sample - loss: 0.399  
9 - accuracy: 0.8317  
Epoch 50/100  
6030/6030 [=====] - 1s 142us/sample - loss: 0.400  
0 - accuracy: 0.8323  
Epoch 51/100  
6030/6030 [=====] - 1s 138us/sample - loss: 0.400  
0 - accuracy: 0.8308 - 1  
Epoch 52/100  
6030/6030 [=====] - 1s 178us/sample - loss: 0.400  
4 - accuracy: 0.8303  
Epoch 53/100  
6030/6030 [=====] - 1s 190us/sample - loss: 0.400  
2 - accuracy: 0.8300 - loss: 0.3952 - accu  
Epoch 54/100  
6030/6030 [=====] - 1s 161us/sample - loss: 0.399  
6 - accuracy: 0.8297  
Epoch 55/100  
6030/6030 [=====] - 1s 161us/sample - loss: 0.399  
7 - accuracy: 0.8315  
Epoch 56/100  
6030/6030 [=====] - 1s 138us/sample - loss: 0.399  
9 - accuracy: 0.8305  
Epoch 57/100  
6030/6030 [=====] - 1s 135us/sample - loss: 0.399  
7 - accuracy: 0.8317  
Epoch 58/100  
6030/6030 [=====] - 1s 139us/sample - loss: 0.399  
2 - accuracy: 0.8299  
Epoch 59/100  
6030/6030 [=====] - 1s 146us/sample - loss: 0.398  
8 - accuracy: 0.8317  
Epoch 60/100  
6030/6030 [=====] - 1s 162us/sample - loss: 0.399  
5 - accuracy: 0.8310  
Epoch 61/100  
6030/6030 [=====] - 1s 148us/sample - loss: 0.399  
1 - accuracy: 0.8300  
Epoch 62/100  
6030/6030 [=====] - 1s 149us/sample - loss: 0.399  
0 - accuracy: 0.8307  
Epoch 63/100  
6030/6030 [=====] - 1s 138us/sample - loss: 0.398  
9 - accuracy: 0.8312  
Epoch 64/100  
6030/6030 [=====] - 1s 152us/sample - loss: 0.398  
9 - accuracy: 0.8308  
Epoch 65/100

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6030/6030 [=====] - 1s 179us/sample - loss: 0.399
3 - accuracy: 0.8303
Epoch 66/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.399
1 - accuracy: 0.8300
Epoch 67/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.398
8 - accuracy: 0.8310
Epoch 68/100
6030/6030 [=====] - 1s 221us/sample - loss: 0.398
9 - accuracy: 0.8294
Epoch 69/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.398
6 - accuracy: 0.8300
Epoch 70/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.398
5 - accuracy: 0.8322
Epoch 71/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.398
4 - accuracy: 0.8320
Epoch 72/100
6030/6030 [=====] - 1s 160us/sample - loss: 0.398
2 - accuracy: 0.8284
Epoch 73/100
6030/6030 [=====] - 1s 150us/sample - loss: 0.398
3 - accuracy: 0.8328
Epoch 74/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.398
4 - accuracy: 0.8317
Epoch 75/100
6030/6030 [=====] - 1s 157us/sample - loss: 0.398
5 - accuracy: 0.8307
Epoch 76/100
6030/6030 [=====] - 1s 138us/sample - loss: 0.398
1 - accuracy: 0.8310
Epoch 77/100
6030/6030 [=====] - 1s 161us/sample - loss: 0.397
9 - accuracy: 0.8308
Epoch 78/100
6030/6030 [=====] - 1s 142us/sample - loss: 0.398
0 - accuracy: 0.8294
Epoch 79/100
6030/6030 [=====] - 1s 152us/sample - loss: 0.398
2 - accuracy: 0.8313
Epoch 80/100
6030/6030 [=====] - 1s 164us/sample - loss: 0.398
2 - accuracy: 0.8315
Epoch 81/100
6030/6030 [=====] - 1s 166us/sample - loss: 0.397
7 - accuracy: 0.8320
Epoch 82/100
6030/6030 [=====] - 1s 149us/sample - loss: 0.397
5 - accuracy: 0.8307
Epoch 83/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.397
9 - accuracy: 0.8313
Epoch 84/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.398
3 - accuracy: 0.8317
Epoch 85/100
6030/6030 [=====] - 1s 151us/sample - loss: 0.397
```



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8 - accuracy: 0.8315
Epoch 86/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.397
5 - accuracy: 0.8310
Epoch 87/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.397
4 - accuracy: 0.8315
Epoch 88/100
6030/6030 [=====] - 1s 141us/sample - loss: 0.398
0 - accuracy: 0.8307
Epoch 89/100
6030/6030 [=====] - 1s 136us/sample - loss: 0.397
6 - accuracy: 0.8322
Epoch 90/100
6030/6030 [=====] - 1s 136us/sample - loss: 0.397
4 - accuracy: 0.8315
Epoch 91/100
6030/6030 [=====] - 1s 137us/sample - loss: 0.397
6 - accuracy: 0.8305
Epoch 92/100
6030/6030 [=====] - 1s 137us/sample - loss: 0.397
4 - accuracy: 0.8325
Epoch 93/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.397
4 - accuracy: 0.8315
Epoch 94/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.397
4 - accuracy: 0.8330
Epoch 95/100
6030/6030 [=====] - 1s 164us/sample - loss: 0.397
6 - accuracy: 0.8310
Epoch 96/100
6030/6030 [=====] - 1s 216us/sample - loss: 0.397
7 - accuracy: 0.8315
Epoch 97/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.397
6 - accuracy: 0.8318
Epoch 98/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.397
1 - accuracy: 0.8303
Epoch 99/100
6030/6030 [=====] - 1s 145us/sample - loss: 0.397
1 - accuracy: 0.8313
Epoch 100/100
6030/6030 [=====] - 1s 137us/sample - loss: 0.397
2 - accuracy: 0.8318
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 1s 224us/sample - loss: 0.608
3 - accuracy: 0.7935
Epoch 2/100
6030/6030 [=====] - 1s 156us/sample - loss: 0.448
3 - accuracy: 0.7935
Epoch 3/100
6030/6030 [=====] - 1s 155us/sample - loss: 0.437
2 - accuracy: 0.7935
Epoch 4/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.433
1 - accuracy: 0.7935
Epoch 5/100
6030/6030 [=====] - 1s 218us/sample - loss: 0.430
```

```
7 - accuracy: 0.7935
Epoch 6/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.428
5 - accuracy: 0.7935
Epoch 7/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.425
9 - accuracy: 0.7935
Epoch 8/100
6030/6030 [=====] - 1s 164us/sample - loss: 0.423
4 - accuracy: 0.7935
Epoch 9/100
6030/6030 [=====] - 1s 136us/sample - loss: 0.421
7 - accuracy: 0.8143
Epoch 10/100
6030/6030 [=====] - 1s 141us/sample - loss: 0.419
9 - accuracy: 0.8212
Epoch 11/100
6030/6030 [=====] - 1s 155us/sample - loss: 0.419
0 - accuracy: 0.8224
Epoch 12/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.418
2 - accuracy: 0.8242
Epoch 13/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.416
9 - accuracy: 0.8254
Epoch 14/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.416
4 - accuracy: 0.8284
Epoch 15/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.415
6 - accuracy: 0.8307
Epoch 16/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.414
7 - accuracy: 0.8294
Epoch 17/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.414
1 - accuracy: 0.8315
Epoch 18/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.413
6 - accuracy: 0.8340
Epoch 19/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.412
7 - accuracy: 0.8330
Epoch 20/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.412
2 - accuracy: 0.8333
Epoch 21/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.411
6 - accuracy: 0.8337
Epoch 22/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.411
7 - accuracy: 0.8328
Epoch 23/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.410
7 - accuracy: 0.8338
Epoch 24/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.410
6 - accuracy: 0.8345
Epoch 25/100
6030/6030 [=====] - 1s 160us/sample - loss: 0.409
9 - accuracy: 0.8323
```

Epoch 26/100  
6030/6030 [=====] - 1s 162us/sample - loss: 0.409  
7 - accuracy: 0.8335

Epoch 27/100  
6030/6030 [=====] - 1s 151us/sample - loss: 0.409  
5 - accuracy: 0.8343

Epoch 28/100  
6030/6030 [=====] - 1s 142us/sample - loss: 0.408  
8 - accuracy: 0.8338

Epoch 29/100  
6030/6030 [=====] - 1s 140us/sample - loss: 0.408  
5 - accuracy: 0.8348

Epoch 30/100  
6030/6030 [=====] - 1s 137us/sample - loss: 0.408  
2 - accuracy: 0.8347

Epoch 31/100  
6030/6030 [=====] - 1s 137us/sample - loss: 0.407  
9 - accuracy: 0.8337

Epoch 32/100  
6030/6030 [=====] - 1s 137us/sample - loss: 0.407  
7 - accuracy: 0.8342

Epoch 33/100  
6030/6030 [=====] - 1s 136us/sample - loss: 0.407  
4 - accuracy: 0.8350

Epoch 34/100  
6030/6030 [=====] - 1s 136us/sample - loss: 0.407  
0 - accuracy: 0.8352

Epoch 35/100  
6030/6030 [=====] - 1s 141us/sample - loss: 0.407  
0 - accuracy: 0.8347

Epoch 36/100  
6030/6030 [=====] - 1s 160us/sample - loss: 0.407  
0 - accuracy: 0.8342

Epoch 37/100  
6030/6030 [=====] - 1s 152us/sample - loss: 0.406  
5 - accuracy: 0.8350

Epoch 38/100  
6030/6030 [=====] - 1s 141us/sample - loss: 0.406  
3 - accuracy: 0.8353

Epoch 39/100  
6030/6030 [=====] - 1s 171us/sample - loss: 0.406  
1 - accuracy: 0.8342

Epoch 40/100  
6030/6030 [=====] - 1s 168us/sample - loss: 0.405  
9 - accuracy: 0.8352

Epoch 41/100  
6030/6030 [=====] - 1s 187us/sample - loss: 0.405  
7 - accuracy: 0.8360

Epoch 42/100  
6030/6030 [=====] - 1s 158us/sample - loss: 0.405  
8 - accuracy: 0.8347

Epoch 43/100  
6030/6030 [=====] - 1s 151us/sample - loss: 0.405  
5 - accuracy: 0.8353

Epoch 44/100  
6030/6030 [=====] - 1s 169us/sample - loss: 0.405  
3 - accuracy: 0.8348

Epoch 45/100  
6030/6030 [=====] - 1s 149us/sample - loss: 0.405  
3 - accuracy: 0.8348

Epoch 46/100

```
6030/6030 [=====] - 1s 198us/sample - loss: 0.404
9 - accuracy: 0.8348
Epoch 47/100
6030/6030 [=====] - 1s 137us/sample - loss: 0.405
3 - accuracy: 0.8342
Epoch 48/100
6030/6030 [=====] - 1s 138us/sample - loss: 0.404
9 - accuracy: 0.8340
Epoch 49/100
6030/6030 [=====] - 1s 146us/sample - loss: 0.404
3 - accuracy: 0.8355
Epoch 50/100
6030/6030 [=====] - 1s 143us/sample - loss: 0.404
5 - accuracy: 0.8345
Epoch 51/100
6030/6030 [=====] - 1s 142us/sample - loss: 0.404
6 - accuracy: 0.8333
Epoch 52/100
6030/6030 [=====] - 1s 137us/sample - loss: 0.404
1 - accuracy: 0.8348
Epoch 53/100
6030/6030 [=====] - 1s 138us/sample - loss: 0.404
2 - accuracy: 0.8352
Epoch 54/100
6030/6030 [=====] - 1s 138us/sample - loss: 0.404
5 - accuracy: 0.8345
Epoch 55/100
6030/6030 [=====] - 1s 136us/sample - loss: 0.403
7 - accuracy: 0.8360
Epoch 56/100
6030/6030 [=====] - 1s 135us/sample - loss: 0.404
0 - accuracy: 0.8343
Epoch 57/100
6030/6030 [=====] - 1s 138us/sample - loss: 0.403
8 - accuracy: 0.8360
Epoch 58/100
6030/6030 [=====] - 1s 137us/sample - loss: 0.403
8 - accuracy: 0.8340
Epoch 59/100
6030/6030 [=====] - 1s 138us/sample - loss: 0.403
3 - accuracy: 0.8358
Epoch 60/100
6030/6030 [=====] - 1s 155us/sample - loss: 0.403
9 - accuracy: 0.8342
Epoch 61/100
6030/6030 [=====] - 1s 139us/sample - loss: 0.403
4 - accuracy: 0.8345
Epoch 62/100
6030/6030 [=====] - 1s 138us/sample - loss: 0.403
2 - accuracy: 0.8352
Epoch 63/100
6030/6030 [=====] - 1s 140us/sample - loss: 0.403
3 - accuracy: 0.8343
Epoch 64/100
6030/6030 [=====] - 1s 141us/sample - loss: 0.403
3 - accuracy: 0.8345
Epoch 65/100
6030/6030 [=====] - 1s 148us/sample - loss: 0.402
8 - accuracy: 0.8348
Epoch 66/100
6030/6030 [=====] - 1s 136us/sample - loss: 0.402
```

```
9 - accuracy: 0.8340
Epoch 67/100
6030/6030 [=====] - 1s 150us/sample - loss: 0.402
8 - accuracy: 0.8345
Epoch 68/100
6030/6030 [=====] - 1s 154us/sample - loss: 0.402
6 - accuracy: 0.8347
Epoch 69/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.402
3 - accuracy: 0.8350
Epoch 70/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.402
3 - accuracy: 0.8347
Epoch 71/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.401
9 - accuracy: 0.8353
Epoch 72/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.402
0 - accuracy: 0.8340
Epoch 73/100
6030/6030 [=====] - 1s 153us/sample - loss: 0.401
6 - accuracy: 0.8352
Epoch 74/100
6030/6030 [=====] - 1s 138us/sample - loss: 0.401
5 - accuracy: 0.8345 - loss:
Epoch 75/100
6030/6030 [=====] - 1s 138us/sample - loss: 0.401
2 - accuracy: 0.8348
Epoch 76/100
6030/6030 [=====] - 1s 161us/sample - loss: 0.401
3 - accuracy: 0.8345
Epoch 77/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.401
3 - accuracy: 0.8342
Epoch 78/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.400
6 - accuracy: 0.8347
Epoch 79/100
6030/6030 [=====] - 1s 145us/sample - loss: 0.400
6 - accuracy: 0.8355
Epoch 80/100
6030/6030 [=====] - 1s 136us/sample - loss: 0.400
5 - accuracy: 0.8347
Epoch 81/100
6030/6030 [=====] - 1s 157us/sample - loss: 0.400
5 - accuracy: 0.8355
Epoch 82/100
6030/6030 [=====] - 1s 154us/sample - loss: 0.400
0 - accuracy: 0.8357
Epoch 83/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.399
9 - accuracy: 0.8352
Epoch 84/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
9 - accuracy: 0.8363
Epoch 85/100
6030/6030 [=====] - 1s 141us/sample - loss: 0.399
3 - accuracy: 0.8347
Epoch 86/100
6030/6030 [=====] - 1s 150us/sample - loss: 0.399
3 - accuracy: 0.8353
```

Epoch 87/100  
6030/6030 [=====] - 1s 148us/sample - loss: 0.399  
1 - accuracy: 0.8350

Epoch 88/100  
6030/6030 [=====] - 1s 173us/sample - loss: 0.399  
2 - accuracy: 0.8350

Epoch 89/100  
6030/6030 [=====] - 1s 223us/sample - loss: 0.398  
9 - accuracy: 0.8353

Epoch 90/100  
6030/6030 [=====] - 1s 156us/sample - loss: 0.399  
1 - accuracy: 0.8350

Epoch 91/100  
6030/6030 [=====] - 1s 154us/sample - loss: 0.399  
0 - accuracy: 0.8345

Epoch 92/100  
6030/6030 [=====] - 1s 151us/sample - loss: 0.399  
1 - accuracy: 0.8362

Epoch 93/100  
6030/6030 [=====] - 1s 164us/sample - loss: 0.398  
5 - accuracy: 0.8358

Epoch 94/100  
6030/6030 [=====] - 1s 166us/sample - loss: 0.398  
9 - accuracy: 0.8355

Epoch 95/100  
6030/6030 [=====] - 1s 212us/sample - loss: 0.399  
0 - accuracy: 0.8350

Epoch 96/100  
6030/6030 [=====] - 1s 158us/sample - loss: 0.398  
6 - accuracy: 0.8370

Epoch 97/100  
6030/6030 [=====] - 1s 159us/sample - loss: 0.398  
3 - accuracy: 0.8370

Epoch 98/100  
6030/6030 [=====] - 1s 159us/sample - loss: 0.398  
8 - accuracy: 0.8347

Epoch 99/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.398  
4 - accuracy: 0.8353

Epoch 100/100  
6030/6030 [=====] - 1s 137us/sample - loss: 0.398  
1 - accuracy: 0.8347

Train on 6030 samples

Epoch 1/100  
6030/6030 [=====] - 1s 223us/sample - loss: 0.588  
0 - accuracy: 0.7925

Epoch 2/100  
6030/6030 [=====] - 1s 141us/sample - loss: 0.448  
9 - accuracy: 0.7925

Epoch 3/100  
6030/6030 [=====] - 1s 143us/sample - loss: 0.439  
4 - accuracy: 0.7925

Epoch 4/100  
6030/6030 [=====] - 1s 141us/sample - loss: 0.435  
5 - accuracy: 0.7925

Epoch 5/100  
6030/6030 [=====] - 1s 149us/sample - loss: 0.432  
5 - accuracy: 0.7925

Epoch 6/100  
6030/6030 [=====] - 1s 137us/sample - loss: 0.429  
4 - accuracy: 0.7925

Epoch 7/100  
6030/6030 [=====] - 1s 140us/sample - loss: 0.427  
2 - accuracy: 0.7925

Epoch 8/100  
6030/6030 [=====] - 1s 142us/sample - loss: 0.425  
5 - accuracy: 0.8138

Epoch 9/100  
6030/6030 [=====] - 1s 153us/sample - loss: 0.424  
2 - accuracy: 0.8181

Epoch 10/100  
6030/6030 [=====] - 1s 172us/sample - loss: 0.423  
1 - accuracy: 0.8211

Epoch 11/100  
6030/6030 [=====] - 1s 159us/sample - loss: 0.422  
3 - accuracy: 0.8226

Epoch 12/100  
6030/6030 [=====] - 1s 156us/sample - loss: 0.421  
4 - accuracy: 0.8234

Epoch 13/100  
6030/6030 [=====] - 1s 139us/sample - loss: 0.420  
6 - accuracy: 0.8245

Epoch 14/100  
6030/6030 [=====] - 1s 142us/sample - loss: 0.419  
4 - accuracy: 0.8272

Epoch 15/100  
6030/6030 [=====] - 1s 140us/sample - loss: 0.418  
9 - accuracy: 0.8265

Epoch 16/100  
6030/6030 [=====] - 1s 143us/sample - loss: 0.418  
1 - accuracy: 0.8265

Epoch 17/100  
6030/6030 [=====] - 1s 141us/sample - loss: 0.417  
6 - accuracy: 0.8274

Epoch 18/100  
6030/6030 [=====] - 1s 139us/sample - loss: 0.416  
8 - accuracy: 0.8285

Epoch 19/100  
6030/6030 [=====] - 1s 142us/sample - loss: 0.416  
5 - accuracy: 0.8280

Epoch 20/100  
6030/6030 [=====] - 1s 140us/sample - loss: 0.416  
1 - accuracy: 0.8287

Epoch 21/100  
6030/6030 [=====] - 1s 139us/sample - loss: 0.415  
4 - accuracy: 0.8289

Epoch 22/100  
6030/6030 [=====] - 1s 151us/sample - loss: 0.414  
8 - accuracy: 0.8287

Epoch 23/100  
6030/6030 [=====] - 1s 171us/sample - loss: 0.414  
2 - accuracy: 0.8285

Epoch 24/100  
6030/6030 [=====] - 1s 164us/sample - loss: 0.413  
7 - accuracy: 0.8299

Epoch 25/100  
6030/6030 [=====] - 1s 161us/sample - loss: 0.413  
1 - accuracy: 0.8287

Epoch 26/100  
6030/6030 [=====] - 1s 167us/sample - loss: 0.412  
9 - accuracy: 0.8294

Epoch 27/100

```
6030/6030 [=====] - 1s 182us/sample - loss: 0.412
4 - accuracy: 0.8297
Epoch 28/100
6030/6030 [=====] - 1s 161us/sample - loss: 0.412
4 - accuracy: 0.8297
Epoch 29/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.411
9 - accuracy: 0.8300
Epoch 30/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.411
5 - accuracy: 0.8303
Epoch 31/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.411
4 - accuracy: 0.8299
Epoch 32/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.411
0 - accuracy: 0.8292
Epoch 33/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.410
5 - accuracy: 0.8305
Epoch 34/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.410
3 - accuracy: 0.8312
Epoch 35/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.410
5 - accuracy: 0.8295
Epoch 36/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.410
1 - accuracy: 0.8315
Epoch 37/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.410
0 - accuracy: 0.8295
Epoch 38/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.409
7 - accuracy: 0.8303
Epoch 39/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.409
5 - accuracy: 0.8297
Epoch 40/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.409
3 - accuracy: 0.8302
Epoch 41/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.408
8 - accuracy: 0.8300
Epoch 42/100
6030/6030 [=====] - 1s 155us/sample - loss: 0.408
9 - accuracy: 0.8294
Epoch 43/100
6030/6030 [=====] - 1s 152us/sample - loss: 0.408
8 - accuracy: 0.8294
Epoch 44/100
6030/6030 [=====] - 1s 152us/sample - loss: 0.409
1 - accuracy: 0.8307
Epoch 45/100
6030/6030 [=====] - 1s 151us/sample - loss: 0.408
4 - accuracy: 0.8303
Epoch 46/100
6030/6030 [=====] - 1s 152us/sample - loss: 0.408
1 - accuracy: 0.8299
Epoch 47/100
6030/6030 [=====] - 1s 157us/sample - loss: 0.408
```



```
3 - accuracy: 0.8297
Epoch 48/100
6030/6030 [=====] - 1s 153us/sample - loss: 0.408
2 - accuracy: 0.8305
Epoch 49/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.408
0 - accuracy: 0.8292
Epoch 50/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.407
7 - accuracy: 0.8308
Epoch 51/100
6030/6030 [=====] - 1s 156us/sample - loss: 0.407
8 - accuracy: 0.8300 - 1
Epoch 52/100
6030/6030 [=====] - 1s 156us/sample - loss: 0.407
7 - accuracy: 0.8302
Epoch 53/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.407
3 - accuracy: 0.8310
Epoch 54/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.407
5 - accuracy: 0.8308
Epoch 55/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.407
0 - accuracy: 0.8299
Epoch 56/100
6030/6030 [=====] - 1s 154us/sample - loss: 0.407
3 - accuracy: 0.8303
Epoch 57/100
6030/6030 [=====] - 1s 155us/sample - loss: 0.406
8 - accuracy: 0.8313
Epoch 58/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.407
0 - accuracy: 0.8320
Epoch 59/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.406
7 - accuracy: 0.8307
Epoch 60/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.406
7 - accuracy: 0.8308
Epoch 61/100
6030/6030 [=====] - 1s 218us/sample - loss: 0.406
6 - accuracy: 0.8310
Epoch 62/100
6030/6030 [=====] - ETA: 0s - loss: 0.4049 - accuracy: 0.83 - 1s 191us/sample - loss: 0.4064 - accuracy: 0.8305
Epoch 63/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.406
6 - accuracy: 0.8308
Epoch 64/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.406
7 - accuracy: 0.8323
Epoch 65/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.406
3 - accuracy: 0.8310
Epoch 66/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.406
3 - accuracy: 0.8307
Epoch 67/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.406
2 - accuracy: 0.8303
```

Epoch 68/100  
6030/6030 [=====] - 1s 213us/sample - loss: 0.406  
2 - accuracy: 0.8292  
Epoch 69/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.406  
0 - accuracy: 0.8305  
Epoch 70/100  
6030/6030 [=====] - 1s 178us/sample - loss: 0.405  
8 - accuracy: 0.8289  
Epoch 71/100  
6030/6030 [=====] - 1s 177us/sample - loss: 0.406  
2 - accuracy: 0.8312  
Epoch 72/100  
6030/6030 [=====] - 1s 162us/sample - loss: 0.406  
0 - accuracy: 0.8308  
Epoch 73/100  
6030/6030 [=====] - 1s 153us/sample - loss: 0.406  
1 - accuracy: 0.8305  
Epoch 74/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.405  
7 - accuracy: 0.8303  
Epoch 75/100  
6030/6030 [=====] - 1s 158us/sample - loss: 0.405  
4 - accuracy: 0.8315  
Epoch 76/100  
6030/6030 [=====] - 1s 155us/sample - loss: 0.405  
9 - accuracy: 0.8322  
Epoch 77/100  
6030/6030 [=====] - 1s 172us/sample - loss: 0.405  
5 - accuracy: 0.8300  
Epoch 78/100  
6030/6030 [=====] - 1s 178us/sample - loss: 0.405  
4 - accuracy: 0.8312  
Epoch 79/100  
6030/6030 [=====] - 1s 162us/sample - loss: 0.405  
3 - accuracy: 0.8313  
Epoch 80/100  
6030/6030 [=====] - 1s 165us/sample - loss: 0.405  
5 - accuracy: 0.8310  
Epoch 81/100  
6030/6030 [=====] - 1s 165us/sample - loss: 0.405  
3 - accuracy: 0.8312  
Epoch 82/100  
6030/6030 [=====] - 1s 153us/sample - loss: 0.405  
6 - accuracy: 0.8327  
Epoch 83/100  
6030/6030 [=====] - 1s 175us/sample - loss: 0.405  
7 - accuracy: 0.8305  
Epoch 84/100  
6030/6030 [=====] - 1s 178us/sample - loss: 0.405  
6 - accuracy: 0.8302  
Epoch 85/100  
6030/6030 [=====] - 1s 173us/sample - loss: 0.405  
0 - accuracy: 0.8302  
Epoch 86/100  
6030/6030 [=====] - 1s 189us/sample - loss: 0.405  
4 - accuracy: 0.8320  
Epoch 87/100  
6030/6030 [=====] - 1s 178us/sample - loss: 0.405  
2 - accuracy: 0.8310  
Epoch 88/100

```
6030/6030 [=====] - 1s 174us/sample - loss: 0.405
3 - accuracy: 0.8317
Epoch 89/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.405
3 - accuracy: 0.8318
Epoch 90/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.404
9 - accuracy: 0.8315
Epoch 91/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.405
2 - accuracy: 0.8307
Epoch 92/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.405
1 - accuracy: 0.8340
Epoch 93/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.405
0 - accuracy: 0.8310
Epoch 94/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.405
0 - accuracy: 0.8320
Epoch 95/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.404
4 - accuracy: 0.8310
Epoch 96/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.405
0 - accuracy: 0.8322
Epoch 97/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.405
1 - accuracy: 0.8318
Epoch 98/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.404
7 - accuracy: 0.8310
Epoch 99/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.404
7 - accuracy: 0.8305
Epoch 100/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.404
3 - accuracy: 0.8325
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 311us/sample - loss: 0.635
6 - accuracy: 0.7871
Epoch 2/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.468
4 - accuracy: 0.7877
Epoch 3/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.445
2 - accuracy: 0.7877
Epoch 4/100
6030/6030 [=====] - 1s 159us/sample - loss: 0.438
6 - accuracy: 0.7877
Epoch 5/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.433
1 - accuracy: 0.8060
Epoch 6/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.428
4 - accuracy: 0.8206
Epoch 7/100
6030/6030 [=====] - 1s 157us/sample - loss: 0.424
2 - accuracy: 0.8257
Epoch 8/100
```

```
6030/6030 [=====] - 1s 152us/sample - loss: 0.420
7 - accuracy: 0.8297
Epoch 9/100
6030/6030 [=====] - 1s 156us/sample - loss: 0.418
1 - accuracy: 0.8302
Epoch 10/100
6030/6030 [=====] - 1s 157us/sample - loss: 0.415
9 - accuracy: 0.8302
Epoch 11/100
6030/6030 [=====] - 1s 156us/sample - loss: 0.414
3 - accuracy: 0.8313
Epoch 12/100
6030/6030 [=====] - 1s 157us/sample - loss: 0.412
5 - accuracy: 0.8290
Epoch 13/100
6030/6030 [=====] - 1s 154us/sample - loss: 0.411
4 - accuracy: 0.8303
Epoch 14/100
6030/6030 [=====] - 1s 157us/sample - loss: 0.410
5 - accuracy: 0.8312
Epoch 15/100
6030/6030 [=====] - 1s 155us/sample - loss: 0.409
2 - accuracy: 0.8313
Epoch 16/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.408
6 - accuracy: 0.8310
Epoch 17/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.407
7 - accuracy: 0.8310
Epoch 18/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.407
2 - accuracy: 0.8318
Epoch 19/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.406
8 - accuracy: 0.8303
Epoch 20/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.406
4 - accuracy: 0.8307
Epoch 21/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.405
1 - accuracy: 0.8330
Epoch 22/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.405
5 - accuracy: 0.8305
Epoch 23/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.405
3 - accuracy: 0.8310
Epoch 24/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.404
7 - accuracy: 0.8300
Epoch 25/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.404
6 - accuracy: 0.8315
Epoch 26/100
6030/6030 [=====] - 1s 142us/sample - loss: 0.403
9 - accuracy: 0.8302
Epoch 27/100
6030/6030 [=====] - 1s 134us/sample - loss: 0.403
7 - accuracy: 0.8308
Epoch 28/100
6030/6030 [=====] - 1s 148us/sample - loss: 0.403
```

```
4 - accuracy: 0.8327
Epoch 29/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.403
4 - accuracy: 0.8312
Epoch 30/100
6030/6030 [=====] - 1s 165us/sample - loss: 0.403
4 - accuracy: 0.8317
Epoch 31/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.402
8 - accuracy: 0.8325
Epoch 32/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.403
2 - accuracy: 0.8307
Epoch 33/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.402
3 - accuracy: 0.8325
Epoch 34/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.402
3 - accuracy: 0.8315
Epoch 35/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.402
3 - accuracy: 0.8305
Epoch 36/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.401
7 - accuracy: 0.8315
Epoch 37/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.401
5 - accuracy: 0.8308
Epoch 38/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.401
3 - accuracy: 0.8315
Epoch 39/100
6030/6030 [=====] - 1s 159us/sample - loss: 0.401
4 - accuracy: 0.8320
Epoch 40/100
6030/6030 [=====] - 1s 140us/sample - loss: 0.401
0 - accuracy: 0.8318
Epoch 41/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.400
7 - accuracy: 0.8320
Epoch 42/100
6030/6030 [=====] - 1s 161us/sample - loss: 0.401
3 - accuracy: 0.8347
Epoch 43/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.400
8 - accuracy: 0.8322
Epoch 44/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.400
7 - accuracy: 0.8332
Epoch 45/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.400
3 - accuracy: 0.8312
Epoch 46/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.400
6 - accuracy: 0.8345
Epoch 47/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.400
1 - accuracy: 0.8330
Epoch 48/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.400
2 - accuracy: 0.8327
```

Epoch 49/100  
6030/6030 [=====] - 1s 176us/sample - loss: 0.400  
2 - accuracy: 0.8318  
Epoch 50/100  
6030/6030 [=====] - 1s 203us/sample - loss: 0.400  
2 - accuracy: 0.8317  
Epoch 51/100  
6030/6030 [=====] - 1s 160us/sample - loss: 0.400  
0 - accuracy: 0.8323  
Epoch 52/100  
6030/6030 [=====] - 1s 152us/sample - loss: 0.400  
0 - accuracy: 0.8315  
Epoch 53/100  
6030/6030 [=====] - 1s 180us/sample - loss: 0.400  
1 - accuracy: 0.8340  
Epoch 54/100  
6030/6030 [=====] - 1s 175us/sample - loss: 0.399  
9 - accuracy: 0.8327  
Epoch 55/100  
6030/6030 [=====] - 1s 197us/sample - loss: 0.399  
6 - accuracy: 0.8328  
Epoch 56/100  
6030/6030 [=====] - 2s 265us/sample - loss: 0.399  
8 - accuracy: 0.8347  
Epoch 57/100  
6030/6030 [=====] - 2s 251us/sample - loss: 0.399  
8 - accuracy: 0.8327  
Epoch 58/100  
6030/6030 [=====] - 1s 184us/sample - loss: 0.399  
6 - accuracy: 0.8333  
Epoch 59/100  
6030/6030 [=====] - 1s 217us/sample - loss: 0.399  
6 - accuracy: 0.8338  
Epoch 60/100  
6030/6030 [=====] - 2s 376us/sample - loss: 0.399  
7 - accuracy: 0.8335  
Epoch 61/100  
6030/6030 [=====] - 1s 180us/sample - loss: 0.399  
5 - accuracy: 0.8320  
Epoch 62/100  
6030/6030 [=====] - 1s 157us/sample - loss: 0.399  
2 - accuracy: 0.8337  
Epoch 63/100  
6030/6030 [=====] - 1s 165us/sample - loss: 0.399  
4 - accuracy: 0.8328  
Epoch 64/100  
6030/6030 [=====] - 1s 171us/sample - loss: 0.399  
3 - accuracy: 0.8317  
Epoch 65/100  
6030/6030 [=====] - 1s 166us/sample - loss: 0.399  
1 - accuracy: 0.8328  
Epoch 66/100  
6030/6030 [=====] - 1s 164us/sample - loss: 0.399  
5 - accuracy: 0.8345  
Epoch 67/100  
6030/6030 [=====] - 1s 164us/sample - loss: 0.399  
2 - accuracy: 0.8330  
Epoch 68/100  
6030/6030 [=====] - 1s 160us/sample - loss: 0.399  
2 - accuracy: 0.8330  
Epoch 69/100

```
6030/6030 [=====] - 1s 200us/sample - loss: 0.398
9 - accuracy: 0.8338
Epoch 70/100
6030/6030 [=====] - 2s 357us/sample - loss: 0.399
0 - accuracy: 0.8342
Epoch 71/100
6030/6030 [=====] - 3s 532us/sample - loss: 0.398
9 - accuracy: 0.8335
Epoch 72/100
6030/6030 [=====] - 2s 298us/sample - loss: 0.399
0 - accuracy: 0.8340
Epoch 73/100
6030/6030 [=====] - 2s 280us/sample - loss: 0.398
7 - accuracy: 0.8338
Epoch 74/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.399
0 - accuracy: 0.8350
Epoch 75/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.398
7 - accuracy: 0.8350
Epoch 76/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.398
8 - accuracy: 0.8348
Epoch 77/100
6030/6030 [=====] - 1s 166us/sample - loss: 0.398
7 - accuracy: 0.8348
Epoch 78/100
6030/6030 [=====] - 1s 167us/sample - loss: 0.398
6 - accuracy: 0.8347
Epoch 79/100
6030/6030 [=====] - 1s 150us/sample - loss: 0.398
8 - accuracy: 0.8363
Epoch 80/100
6030/6030 [=====] - 1s 152us/sample - loss: 0.398
7 - accuracy: 0.8350
Epoch 81/100
6030/6030 [=====] - 1s 145us/sample - loss: 0.398
7 - accuracy: 0.8342
Epoch 82/100
6030/6030 [=====] - 1s 153us/sample - loss: 0.398
4 - accuracy: 0.8350
Epoch 83/100
6030/6030 [=====] - 1s 141us/sample - loss: 0.398
4 - accuracy: 0.8353
Epoch 84/100
6030/6030 [=====] - 1s 142us/sample - loss: 0.398
6 - accuracy: 0.8345
Epoch 85/100
6030/6030 [=====] - 1s 145us/sample - loss: 0.398
1 - accuracy: 0.8353
Epoch 86/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.398
2 - accuracy: 0.8355
Epoch 87/100
6030/6030 [=====] - 1s 159us/sample - loss: 0.398
4 - accuracy: 0.8353
Epoch 88/100
6030/6030 [=====] - 1s 158us/sample - loss: 0.398
7 - accuracy: 0.8360
Epoch 89/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.397
```

```
9 - accuracy: 0.8350
Epoch 90/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.398
3 - accuracy: 0.8345
Epoch 91/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.398
2 - accuracy: 0.8363
Epoch 92/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.398
2 - accuracy: 0.8353
Epoch 93/100
6030/6030 [=====] - 1s 224us/sample - loss: 0.398
2 - accuracy: 0.8348
Epoch 94/100
6030/6030 [=====] - 1s 240us/sample - loss: 0.397
8 - accuracy: 0.8353
Epoch 95/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.398
1 - accuracy: 0.8365
Epoch 96/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.398
1 - accuracy: 0.8352
Epoch 97/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.397
9 - accuracy: 0.8368
Epoch 98/100
6030/6030 [=====] - 2s 258us/sample - loss: 0.397
8 - accuracy: 0.8342
Epoch 99/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.397
7 - accuracy: 0.8365
Epoch 100/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.397
8 - accuracy: 0.8353
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 3s 425us/sample - loss: 0.605
1 - accuracy: 0.7909
Epoch 2/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.449
8 - accuracy: 0.7912
Epoch 3/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.440
6 - accuracy: 0.7912
Epoch 4/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.436
8 - accuracy: 0.7912
Epoch 5/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.434
0 - accuracy: 0.7912
Epoch 6/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.431
5 - accuracy: 0.7912
Epoch 7/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.429
5 - accuracy: 0.7912
Epoch 8/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.427
5 - accuracy: 0.7949
Epoch 9/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.425
```



```
9 - accuracy: 0.8161
Epoch 10/100
6030/6030 [=====] - 1s 224us/sample - loss: 0.424
6 - accuracy: 0.8189
Epoch 11/100
6030/6030 [=====] - 1s 233us/sample - loss: 0.423
7 - accuracy: 0.8206
Epoch 12/100
6030/6030 [=====] - 1s 228us/sample - loss: 0.422
3 - accuracy: 0.8240
Epoch 13/100
6030/6030 [=====] - 2s 265us/sample - loss: 0.421
6 - accuracy: 0.8250
Epoch 14/100
6030/6030 [=====] - 1s 227us/sample - loss: 0.420
2 - accuracy: 0.8262
Epoch 15/100
6030/6030 [=====] - 1s 221us/sample - loss: 0.419
3 - accuracy: 0.8287
Epoch 16/100
6030/6030 [=====] - 1s 218us/sample - loss: 0.419
5 - accuracy: 0.8259
Epoch 17/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.417
9 - accuracy: 0.8289
Epoch 18/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.417
7 - accuracy: 0.8272
Epoch 19/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.417
2 - accuracy: 0.8274
Epoch 20/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.416
6 - accuracy: 0.8292
Epoch 21/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.416
3 - accuracy: 0.8289
Epoch 22/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.415
3 - accuracy: 0.8292
Epoch 23/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.415
3 - accuracy: 0.8279
Epoch 24/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.414
3 - accuracy: 0.8284
Epoch 25/100
6030/6030 [=====] - 1s 157us/sample - loss: 0.414
1 - accuracy: 0.8292
Epoch 26/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.414
0 - accuracy: 0.8275
Epoch 27/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.413
5 - accuracy: 0.8299
Epoch 28/100
6030/6030 [=====] - 1s 157us/sample - loss: 0.413
1 - accuracy: 0.8280
Epoch 29/100
6030/6030 [=====] - 1s 158us/sample - loss: 0.412
7 - accuracy: 0.8289
```

```
Epoch 30/100
6030/6030 [=====] - 1s 159us/sample - loss: 0.412
7 - accuracy: 0.8282
Epoch 31/100
6030/6030 [=====] - 1s 160us/sample - loss: 0.412
5 - accuracy: 0.8295
Epoch 32/100
6030/6030 [=====] - 1s 157us/sample - loss: 0.412
1 - accuracy: 0.8294
Epoch 33/100
6030/6030 [=====] - 1s 158us/sample - loss: 0.411
6 - accuracy: 0.8289
Epoch 34/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.411
7 - accuracy: 0.8290
Epoch 35/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.411
9 - accuracy: 0.8289
Epoch 36/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.411
4 - accuracy: 0.8290
Epoch 37/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.410
9 - accuracy: 0.8300
Epoch 38/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.410
9 - accuracy: 0.8290
Epoch 39/100
6030/6030 [=====] - 1s 166us/sample - loss: 0.410
7 - accuracy: 0.8287
Epoch 40/100
6030/6030 [=====] - 1s 164us/sample - loss: 0.410
4 - accuracy: 0.8282
Epoch 41/100
6030/6030 [=====] - 1s 165us/sample - loss: 0.410
4 - accuracy: 0.8282
Epoch 42/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.410
1 - accuracy: 0.8295
Epoch 43/100
6030/6030 [=====] - 1s 159us/sample - loss: 0.409
9 - accuracy: 0.8308
Epoch 44/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.410
0 - accuracy: 0.8297
Epoch 45/100
6030/6030 [=====] - 1s 232us/sample - loss: 0.409
6 - accuracy: 0.8287
Epoch 46/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.409
3 - accuracy: 0.8292
Epoch 47/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.409
5 - accuracy: 0.8295
Epoch 48/100
6030/6030 [=====] - 2s 261us/sample - loss: 0.409
7 - accuracy: 0.8290
Epoch 49/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.409
6 - accuracy: 0.8290
Epoch 50/100
```

```
6030/6030 [=====] - 1s 187us/sample - loss: 0.409
2 - accuracy: 0.8287
Epoch 51/100
6030/6030 [=====] - 1s 164us/sample - loss: 0.409
1 - accuracy: 0.8297
Epoch 52/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.408
7 - accuracy: 0.8305
Epoch 53/100
6030/6030 [=====] - 1s 167us/sample - loss: 0.409
1 - accuracy: 0.8297
Epoch 54/100
6030/6030 [=====] - 1s 161us/sample - loss: 0.408
9 - accuracy: 0.8300
Epoch 55/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.408
6 - accuracy: 0.8294
Epoch 56/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.408
6 - accuracy: 0.8307
Epoch 57/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.408
6 - accuracy: 0.8299
Epoch 58/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.408
7 - accuracy: 0.8305
Epoch 59/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.408
3 - accuracy: 0.8299
Epoch 60/100
6030/6030 [=====] - 1s 248us/sample - loss: 0.408
3 - accuracy: 0.8289
Epoch 61/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.408
6 - accuracy: 0.8299
Epoch 62/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.408
4 - accuracy: 0.8300
Epoch 63/100
6030/6030 [=====] - 1s 227us/sample - loss: 0.408
3 - accuracy: 0.8300
Epoch 64/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.408
3 - accuracy: 0.8308
Epoch 65/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.407
8 - accuracy: 0.8302
Epoch 66/100
6030/6030 [=====] - 1s 226us/sample - loss: 0.407
9 - accuracy: 0.8305
Epoch 67/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.408
0 - accuracy: 0.8295
Epoch 68/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.407
6 - accuracy: 0.8282
Epoch 69/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.408
3 - accuracy: 0.8303
Epoch 70/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.408
```

```
0 - accuracy: 0.8294
Epoch 71/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.407
7 - accuracy: 0.8305
Epoch 72/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.407
8 - accuracy: 0.8302
Epoch 73/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.407
9 - accuracy: 0.8300
Epoch 74/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.407
8 - accuracy: 0.8289
Epoch 75/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.407
5 - accuracy: 0.8297
Epoch 76/100
6030/6030 [=====] - ETA: 0s - loss: 0.4074 - accuracy: 0.82 - 1s 193us/sample - loss: 0.4074 - accuracy: 0.8294
Epoch 77/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.407
2 - accuracy: 0.8302
Epoch 78/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.408
1 - accuracy: 0.8297
Epoch 79/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.407
3 - accuracy: 0.8290
Epoch 80/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.407
8 - accuracy: 0.8303
Epoch 81/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.407
7 - accuracy: 0.8310
Epoch 82/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.407
3 - accuracy: 0.8300
Epoch 83/100
6030/6030 [=====] - 2s 268us/sample - loss: 0.407
7 - accuracy: 0.8302
Epoch 84/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.407
5 - accuracy: 0.8297
Epoch 85/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.407
3 - accuracy: 0.8282
Epoch 86/100
6030/6030 [=====] - 1s 161us/sample - loss: 0.407
3 - accuracy: 0.8300
Epoch 87/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.407
2 - accuracy: 0.8300
Epoch 88/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.407
4 - accuracy: 0.8297
Epoch 89/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.407
1 - accuracy: 0.8294
Epoch 90/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.407
1 - accuracy: 0.8294
```

```
Epoch 91/100
6030/6030 [=====] - 1s 159us/sample - loss: 0.406
9 - accuracy: 0.8295
Epoch 92/100
6030/6030 [=====] - 1s 166us/sample - loss: 0.407
0 - accuracy: 0.8300
Epoch 93/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.407
7 - accuracy: 0.8305
Epoch 94/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.406
7 - accuracy: 0.8300
Epoch 95/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.407
1 - accuracy: 0.8284
Epoch 96/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.406
9 - accuracy: 0.8289
Epoch 97/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.406
5 - accuracy: 0.8294
Epoch 98/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.407
2 - accuracy: 0.8305
Epoch 99/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.406
6 - accuracy: 0.8302
Epoch 100/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.406
9 - accuracy: 0.8312
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 278us/sample - loss: 0.635
2 - accuracy: 0.7912
Epoch 2/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.467
0 - accuracy: 0.7934
Epoch 3/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.435
7 - accuracy: 0.7934
Epoch 4/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.429
4 - accuracy: 0.7934
Epoch 5/100
6030/6030 [=====] - 1s 156us/sample - loss: 0.425
8 - accuracy: 0.8121
Epoch 6/100
6030/6030 [=====] - 1s 156us/sample - loss: 0.423
0 - accuracy: 0.8192
Epoch 7/100
6030/6030 [=====] - 1s 158us/sample - loss: 0.420
7 - accuracy: 0.8191
Epoch 8/100
6030/6030 [=====] - 1s 156us/sample - loss: 0.418
1 - accuracy: 0.8237
Epoch 9/100
6030/6030 [=====] - 1s 157us/sample - loss: 0.415
1 - accuracy: 0.8270
Epoch 10/100
6030/6030 [=====] - 1s 156us/sample - loss: 0.412
3 - accuracy: 0.8290
```

Epoch 11/100  
6030/6030 [=====] - 1s 157us/sample - loss: 0.410  
6 - accuracy: 0.8302

Epoch 12/100  
6030/6030 [=====] - 1s 157us/sample - loss: 0.408  
6 - accuracy: 0.8322

Epoch 13/100  
6030/6030 [=====] - 1s 160us/sample - loss: 0.407  
1 - accuracy: 0.8305

Epoch 14/100  
6030/6030 [=====] - 1s 180us/sample - loss: 0.405  
6 - accuracy: 0.8312

Epoch 15/100  
6030/6030 [=====] - 1s 224us/sample - loss: 0.404  
3 - accuracy: 0.8322

Epoch 16/100  
6030/6030 [=====] - 1s 206us/sample - loss: 0.403  
3 - accuracy: 0.8317

Epoch 17/100  
6030/6030 [=====] - 1s 242us/sample - loss: 0.402  
6 - accuracy: 0.8330

Epoch 18/100  
6030/6030 [=====] - 1s 221us/sample - loss: 0.401  
7 - accuracy: 0.8327

Epoch 19/100  
6030/6030 [=====] - 1s 204us/sample - loss: 0.401  
0 - accuracy: 0.8338

Epoch 20/100  
6030/6030 [=====] - 1s 173us/sample - loss: 0.400  
4 - accuracy: 0.8343

Epoch 21/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.399  
2 - accuracy: 0.8328 - loss: 0.4005 - ac

Epoch 22/100  
6030/6030 [=====] - 1s 184us/sample - loss: 0.399  
4 - accuracy: 0.8332

Epoch 23/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.398  
7 - accuracy: 0.8327

Epoch 24/100  
6030/6030 [=====] - 1s 211us/sample - loss: 0.398  
3 - accuracy: 0.8335

Epoch 25/100  
6030/6030 [=====] - 1s 192us/sample - loss: 0.397  
9 - accuracy: 0.8338

Epoch 26/100  
6030/6030 [=====] - 1s 175us/sample - loss: 0.397  
6 - accuracy: 0.8353

Epoch 27/100  
6030/6030 [=====] - 1s 239us/sample - loss: 0.397  
6 - accuracy: 0.8335

Epoch 28/100  
6030/6030 [=====] - 1s 235us/sample - loss: 0.397  
0 - accuracy: 0.8338

Epoch 29/100  
6030/6030 [=====] - 1s 194us/sample - loss: 0.396  
9 - accuracy: 0.8352

Epoch 30/100  
6030/6030 [=====] - 1s 240us/sample - loss: 0.396  
3 - accuracy: 0.8350

Epoch 31/100

```
6030/6030 [=====] - 1s 233us/sample - loss: 0.395
9 - accuracy: 0.8358
Epoch 32/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.395
7 - accuracy: 0.8357
Epoch 33/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.395
4 - accuracy: 0.8347
Epoch 34/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.395
0 - accuracy: 0.8342
Epoch 35/100
6030/6030 [=====] - 1s 165us/sample - loss: 0.394
9 - accuracy: 0.8383
Epoch 36/100
6030/6030 [=====] - 2s 249us/sample - loss: 0.394
6 - accuracy: 0.8376
Epoch 37/100
6030/6030 [=====] - 2s 261us/sample - loss: 0.393
8 - accuracy: 0.8373
Epoch 38/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.393
0 - accuracy: 0.8370
Epoch 39/100
6030/6030 [=====] - 2s 250us/sample - loss: 0.392
7 - accuracy: 0.8376
Epoch 40/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.392
1 - accuracy: 0.8385
Epoch 41/100
6030/6030 [=====] - 1s 165us/sample - loss: 0.391
1 - accuracy: 0.8388
Epoch 42/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.390
5 - accuracy: 0.8383
Epoch 43/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.390
1 - accuracy: 0.8406
Epoch 44/100
6030/6030 [=====] - 1s 158us/sample - loss: 0.389
2 - accuracy: 0.8390
Epoch 45/100
6030/6030 [=====] - 1s 158us/sample - loss: 0.388
2 - accuracy: 0.8411
Epoch 46/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.387
0 - accuracy: 0.8418
Epoch 47/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.385
6 - accuracy: 0.8413
Epoch 48/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.382
9 - accuracy: 0.8406
Epoch 49/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.379
9 - accuracy: 0.8439
Epoch 50/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.378
0 - accuracy: 0.8434
Epoch 51/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.375
```

```
1 - accuracy: 0.8454
Epoch 52/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.371
9 - accuracy: 0.8459
Epoch 53/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.370
2 - accuracy: 0.8466
Epoch 54/100
6030/6030 [=====] - 1s 156us/sample - loss: 0.367
7 - accuracy: 0.8489
Epoch 55/100
6030/6030 [=====] - 1s 167us/sample - loss: 0.366
5 - accuracy: 0.8516
Epoch 56/100
6030/6030 [=====] - 1s 167us/sample - loss: 0.364
6 - accuracy: 0.8526
Epoch 57/100
6030/6030 [=====] - 1s 156us/sample - loss: 0.361
7 - accuracy: 0.8539
Epoch 58/100
6030/6030 [=====] - 1s 159us/sample - loss: 0.359
9 - accuracy: 0.8539
Epoch 59/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.359
0 - accuracy: 0.8519
Epoch 60/100
6030/6030 [=====] - 1s 159us/sample - loss: 0.357
2 - accuracy: 0.8526
Epoch 61/100
6030/6030 [=====] - 1s 158us/sample - loss: 0.355
2 - accuracy: 0.8531
Epoch 62/100
6030/6030 [=====] - 1s 156us/sample - loss: 0.354
0 - accuracy: 0.8512
Epoch 63/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.352
9 - accuracy: 0.8557
Epoch 64/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.351
4 - accuracy: 0.8551
Epoch 65/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.351
1 - accuracy: 0.8537
Epoch 66/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.350
1 - accuracy: 0.8572
Epoch 67/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.349
3 - accuracy: 0.8599
Epoch 68/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.348
6 - accuracy: 0.8552
Epoch 69/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.347
9 - accuracy: 0.8554
Epoch 70/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.348
7 - accuracy: 0.8566
Epoch 71/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.348
2 - accuracy: 0.8546
```



Epoch 72/100  
6030/6030 [=====] - 1s 211us/sample - loss: 0.347  
1 - accuracy: 0.8556  
Epoch 73/100  
6030/6030 [=====] - 1s 162us/sample - loss: 0.346  
5 - accuracy: 0.8580  
Epoch 74/100  
6030/6030 [=====] - 1s 160us/sample - loss: 0.346  
7 - accuracy: 0.8542  
Epoch 75/100  
6030/6030 [=====] - 1s 163us/sample - loss: 0.346  
0 - accuracy: 0.8556  
Epoch 76/100  
6030/6030 [=====] - 1s 175us/sample - loss: 0.346  
9 - accuracy: 0.8544  
Epoch 77/100  
6030/6030 [=====] - 1s 173us/sample - loss: 0.345  
4 - accuracy: 0.8557  
Epoch 78/100  
6030/6030 [=====] - 1s 167us/sample - loss: 0.344  
6 - accuracy: 0.8570  
Epoch 79/100  
6030/6030 [=====] - 1s 220us/sample - loss: 0.344  
8 - accuracy: 0.8584  
Epoch 80/100  
6030/6030 [=====] - 1s 179us/sample - loss: 0.346  
1 - accuracy: 0.8572  
Epoch 81/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.344  
2 - accuracy: 0.8556  
Epoch 82/100  
6030/6030 [=====] - 1s 171us/sample - loss: 0.345  
1 - accuracy: 0.8564  
Epoch 83/100  
6030/6030 [=====] - 1s 177us/sample - loss: 0.343  
9 - accuracy: 0.8572  
Epoch 84/100  
6030/6030 [=====] - 1s 180us/sample - loss: 0.344  
2 - accuracy: 0.8566  
Epoch 85/100  
6030/6030 [=====] - 1s 214us/sample - loss: 0.343  
7 - accuracy: 0.8585  
Epoch 86/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.343  
1 - accuracy: 0.8592  
Epoch 87/100  
6030/6030 [=====] - 1s 204us/sample - loss: 0.344  
1 - accuracy: 0.8561  
Epoch 88/100  
6030/6030 [=====] - 1s 191us/sample - loss: 0.343  
6 - accuracy: 0.8602  
Epoch 89/100  
6030/6030 [=====] - 1s 163us/sample - loss: 0.343  
8 - accuracy: 0.8574  
Epoch 90/100  
6030/6030 [=====] - 1s 202us/sample - loss: 0.342  
9 - accuracy: 0.8575  
Epoch 91/100  
6030/6030 [=====] - 1s 169us/sample - loss: 0.343  
1 - accuracy: 0.8592  
Epoch 92/100

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6030/6030 [=====] - 1s 160us/sample - loss: 0.342
4 - accuracy: 0.8582
Epoch 93/100
6030/6030 [=====] - 1s 158us/sample - loss: 0.342
6 - accuracy: 0.8574
Epoch 94/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.343
1 - accuracy: 0.8585
Epoch 95/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.342
4 - accuracy: 0.8574
Epoch 96/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.343
2 - accuracy: 0.8544
Epoch 97/100
6030/6030 [=====] - 1s 164us/sample - loss: 0.341
8 - accuracy: 0.8584
Epoch 98/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.343
3 - accuracy: 0.8579
Epoch 99/100
6030/6030 [=====] - 1s 159us/sample - loss: 0.342
9 - accuracy: 0.8574
Epoch 100/100
6030/6030 [=====] - 1s 159us/sample - loss: 0.343
3 - accuracy: 0.8577
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 260us/sample - loss: 0.603
2 - accuracy: 0.7910
Epoch 2/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.448
5 - accuracy: 0.7920
Epoch 3/100
6030/6030 [=====] - 1s 160us/sample - loss: 0.439
5 - accuracy: 0.7920
Epoch 4/100
6030/6030 [=====] - 1s 157us/sample - loss: 0.436
5 - accuracy: 0.7920
Epoch 5/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.434
7 - accuracy: 0.7920
Epoch 6/100
6030/6030 [=====] - 1s 159us/sample - loss: 0.433
5 - accuracy: 0.7920
Epoch 7/100
6030/6030 [=====] - 1s 158us/sample - loss: 0.432
2 - accuracy: 0.7920
Epoch 8/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.431
0 - accuracy: 0.7920
Epoch 9/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.429
0 - accuracy: 0.7920
Epoch 10/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.426
8 - accuracy: 0.8010
Epoch 11/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.424
8 - accuracy: 0.8169
Epoch 12/100
```

```
6030/6030 [=====] - 1s 201us/sample - loss: 0.423
6 - accuracy: 0.8189
Epoch 13/100
6030/6030 [=====] - 1s 164us/sample - loss: 0.422
4 - accuracy: 0.8196
Epoch 14/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.420
9 - accuracy: 0.8232
Epoch 15/100
6030/6030 [=====] - 1s 158us/sample - loss: 0.420
1 - accuracy: 0.8240
Epoch 16/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.418
9 - accuracy: 0.8257
Epoch 17/100
6030/6030 [=====] - 1s 164us/sample - loss: 0.418
4 - accuracy: 0.8269
Epoch 18/100
6030/6030 [=====] - 1s 161us/sample - loss: 0.417
7 - accuracy: 0.8265
Epoch 19/100
6030/6030 [=====] - 1s 157us/sample - loss: 0.417
1 - accuracy: 0.8260
Epoch 20/100
6030/6030 [=====] - 1s 153us/sample - loss: 0.416
3 - accuracy: 0.8267
Epoch 21/100
6030/6030 [=====] - 1s 157us/sample - loss: 0.415
5 - accuracy: 0.8272
Epoch 22/100
6030/6030 [=====] - 1s 161us/sample - loss: 0.415
1 - accuracy: 0.8284
Epoch 23/100
6030/6030 [=====] - 1s 164us/sample - loss: 0.414
6 - accuracy: 0.8274
Epoch 24/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.413
9 - accuracy: 0.8270
Epoch 25/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.413
5 - accuracy: 0.8287
Epoch 26/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.413
2 - accuracy: 0.8292
Epoch 27/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.412
5 - accuracy: 0.8285
Epoch 28/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.412
2 - accuracy: 0.8294
Epoch 29/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.411
9 - accuracy: 0.8280
Epoch 30/100
6030/6030 [=====] - 1s 164us/sample - loss: 0.411
3 - accuracy: 0.8289
Epoch 31/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.411
2 - accuracy: 0.8285
Epoch 32/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.410
```

```
7 - accuracy: 0.8294
Epoch 33/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.410
6 - accuracy: 0.8287
Epoch 34/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.410
7 - accuracy: 0.8297
Epoch 35/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.409
8 - accuracy: 0.8290
Epoch 36/100
6030/6030 [=====] - 1s 164us/sample - loss: 0.409
4 - accuracy: 0.8295
Epoch 37/100
6030/6030 [=====] - 1s 158us/sample - loss: 0.409
6 - accuracy: 0.8303
Epoch 38/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.409
1 - accuracy: 0.8297
Epoch 39/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.409
4 - accuracy: 0.8310
Epoch 40/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.408
7 - accuracy: 0.8305
Epoch 41/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.408
4 - accuracy: 0.8312
Epoch 42/100
6030/6030 [=====] - 1s 157us/sample - loss: 0.408
2 - accuracy: 0.8299
Epoch 43/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.408
4 - accuracy: 0.8302
Epoch 44/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.408
3 - accuracy: 0.8308
Epoch 45/100
6030/6030 [=====] - 1s 158us/sample - loss: 0.407
9 - accuracy: 0.8313
Epoch 46/100
6030/6030 [=====] - 1s 160us/sample - loss: 0.407
9 - accuracy: 0.8297
Epoch 47/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.407
8 - accuracy: 0.8318
Epoch 48/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.407
4 - accuracy: 0.8310
Epoch 49/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.407
7 - accuracy: 0.8312
Epoch 50/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.407
2 - accuracy: 0.8317
Epoch 51/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.407
2 - accuracy: 0.8303
Epoch 52/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.406
9 - accuracy: 0.8303
```

Epoch 53/100  
6030/6030 [=====] - 1s 193us/sample - loss: 0.407  
0 - accuracy: 0.8303

Epoch 54/100  
6030/6030 [=====] - 1s 180us/sample - loss: 0.407  
0 - accuracy: 0.8312

Epoch 55/100  
6030/6030 [=====] - 1s 165us/sample - loss: 0.406  
7 - accuracy: 0.8308

Epoch 56/100  
6030/6030 [=====] - 1s 163us/sample - loss: 0.406  
5 - accuracy: 0.8307

Epoch 57/100  
6030/6030 [=====] - 1s 193us/sample - loss: 0.406  
6 - accuracy: 0.8322

Epoch 58/100  
6030/6030 [=====] - 1s 158us/sample - loss: 0.406  
5 - accuracy: 0.8318

Epoch 59/100  
6030/6030 [=====] - 1s 157us/sample - loss: 0.406  
6 - accuracy: 0.8307

Epoch 60/100  
6030/6030 [=====] - 1s 158us/sample - loss: 0.406  
3 - accuracy: 0.8317

Epoch 61/100  
6030/6030 [=====] - 1s 162us/sample - loss: 0.406  
0 - accuracy: 0.8310

Epoch 62/100  
6030/6030 [=====] - 1s 180us/sample - loss: 0.406  
0 - accuracy: 0.8307

Epoch 63/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.406  
1 - accuracy: 0.8305

Epoch 64/100  
6030/6030 [=====] - 1s 171us/sample - loss: 0.405  
8 - accuracy: 0.8310

Epoch 65/100  
6030/6030 [=====] - ETA: 0s - loss: 0.4052 - accuracy: 0.83 - 1s 182us/sample - loss: 0.4057 - accuracy: 0.8299

Epoch 66/100  
6030/6030 [=====] - 1s 174us/sample - loss: 0.406  
0 - accuracy: 0.8315

Epoch 67/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.405  
4 - accuracy: 0.8303

Epoch 68/100  
6030/6030 [=====] - 1s 165us/sample - loss: 0.405  
1 - accuracy: 0.8307

Epoch 69/100  
6030/6030 [=====] - 1s 158us/sample - loss: 0.405  
3 - accuracy: 0.8312

Epoch 70/100  
6030/6030 [=====] - 1s 171us/sample - loss: 0.405  
5 - accuracy: 0.8297

Epoch 71/100  
6030/6030 [=====] - 1s 176us/sample - loss: 0.405  
2 - accuracy: 0.8302

Epoch 72/100  
6030/6030 [=====] - 1s 164us/sample - loss: 0.405  
0 - accuracy: 0.8302

Epoch 73/100

```
6030/6030 [=====] - 1s 169us/sample - loss: 0.404
9 - accuracy: 0.8307
Epoch 74/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.405
0 - accuracy: 0.8312
Epoch 75/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.405
0 - accuracy: 0.8307
Epoch 76/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.404
7 - accuracy: 0.8318
Epoch 77/100
6030/6030 [=====] - 1s 158us/sample - loss: 0.404
5 - accuracy: 0.8302
Epoch 78/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.404
0 - accuracy: 0.8312
Epoch 79/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.403
7 - accuracy: 0.8315
Epoch 80/100
6030/6030 [=====] - 1s 164us/sample - loss: 0.403
6 - accuracy: 0.8327
Epoch 81/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.403
6 - accuracy: 0.8327
Epoch 82/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.403
3 - accuracy: 0.8310
Epoch 83/100
6030/6030 [=====] - 1s 160us/sample - loss: 0.403
0 - accuracy: 0.8312
Epoch 84/100
6030/6030 [=====] - 1s 167us/sample - loss: 0.402
6 - accuracy: 0.8307 -
Epoch 85/100
6030/6030 [=====] - 1s 161us/sample - loss: 0.403
0 - accuracy: 0.8330
Epoch 86/100
6030/6030 [=====] - 1s 165us/sample - loss: 0.402
6 - accuracy: 0.8318
Epoch 87/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.402
5 - accuracy: 0.8327
Epoch 88/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.402
9 - accuracy: 0.8308
Epoch 89/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.402
1 - accuracy: 0.8310
Epoch 90/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.402
3 - accuracy: 0.8322
Epoch 91/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.402
3 - accuracy: 0.8322
Epoch 92/100
6030/6030 [=====] - 1s 158us/sample - loss: 0.402
1 - accuracy: 0.8318
Epoch 93/100
6030/6030 [=====] - 1s 156us/sample - loss: 0.401
```

```
9 - accuracy: 0.8320
Epoch 94/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.402
3 - accuracy: 0.8312
Epoch 95/100
6030/6030 [=====] - 1s 159us/sample - loss: 0.402
0 - accuracy: 0.8327
Epoch 96/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.401
8 - accuracy: 0.8325
Epoch 97/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.402
1 - accuracy: 0.8318
Epoch 98/100
6030/6030 [=====] - 1s 238us/sample - loss: 0.401
9 - accuracy: 0.8318
Epoch 99/100
6030/6030 [=====] - 1s 239us/sample - loss: 0.401
9 - accuracy: 0.8323
Epoch 100/100
6030/6030 [=====] - 2s 279us/sample - loss: 0.401
5 - accuracy: 0.8328
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 356us/sample - loss: 0.602
4 - accuracy: 0.7884
Epoch 2/100
6030/6030 [=====] - 3s 469us/sample - loss: 0.451
4 - accuracy: 0.7907
Epoch 3/100
6030/6030 [=====] - 2s 252us/sample - loss: 0.441
4 - accuracy: 0.7907
Epoch 4/100
6030/6030 [=====] - 2s 260us/sample - loss: 0.438
2 - accuracy: 0.7907
Epoch 5/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.436
3 - accuracy: 0.7907
Epoch 6/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.435
0 - accuracy: 0.7907
Epoch 7/100
6030/6030 [=====] - 1s 159us/sample - loss: 0.432
7 - accuracy: 0.7907
Epoch 8/100
6030/6030 [=====] - 1s 157us/sample - loss: 0.430
3 - accuracy: 0.7907
Epoch 9/100
6030/6030 [=====] - 1s 160us/sample - loss: 0.428
2 - accuracy: 0.7937
Epoch 10/100
6030/6030 [=====] - 1s 156us/sample - loss: 0.426
6 - accuracy: 0.8095
Epoch 11/100
6030/6030 [=====] - 1s 160us/sample - loss: 0.425
2 - accuracy: 0.8154
Epoch 12/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.424
2 - accuracy: 0.8182
Epoch 13/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.423
```

```
2 - accuracy: 0.8231
Epoch 14/100
6030/6030 [=====] - 1s 166us/sample - loss: 0.422
2 - accuracy: 0.8227
Epoch 15/100
6030/6030 [=====] - 1s 158us/sample - loss: 0.421
4 - accuracy: 0.8267
Epoch 16/100
6030/6030 [=====] - 1s 245us/sample - loss: 0.420
7 - accuracy: 0.8269
Epoch 17/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.420
2 - accuracy: 0.8292
Epoch 18/100
6030/6030 [=====] - 1s 226us/sample - loss: 0.419
2 - accuracy: 0.8295
Epoch 19/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.418
7 - accuracy: 0.8295
Epoch 20/100
6030/6030 [=====] - 1s 160us/sample - loss: 0.417
7 - accuracy: 0.8292
Epoch 21/100
6030/6030 [=====] - 2s 279us/sample - loss: 0.417
1 - accuracy: 0.8282
Epoch 22/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.416
6 - accuracy: 0.8289
Epoch 23/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.416
0 - accuracy: 0.8307
Epoch 24/100
6030/6030 [=====] - 1s 245us/sample - loss: 0.415
5 - accuracy: 0.8310
Epoch 25/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.415
0 - accuracy: 0.8318
Epoch 26/100
6030/6030 [=====] - 1s 165us/sample - loss: 0.414
4 - accuracy: 0.8300
Epoch 27/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.413
8 - accuracy: 0.8303
Epoch 28/100
6030/6030 [=====] - 1s 166us/sample - loss: 0.413
4 - accuracy: 0.8307
Epoch 29/100
6030/6030 [=====] - 1s 159us/sample - loss: 0.412
8 - accuracy: 0.8315
Epoch 30/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.412
5 - accuracy: 0.8325
Epoch 31/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.412
3 - accuracy: 0.8320
Epoch 32/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.411
8 - accuracy: 0.8320
Epoch 33/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.411
4 - accuracy: 0.8318
```



Epoch 34/100  
6030/6030 [=====] - 1s 162us/sample - loss: 0.411  
0 - accuracy: 0.8333

Epoch 35/100  
6030/6030 [=====] - 1s 210us/sample - loss: 0.410  
5 - accuracy: 0.8315

Epoch 36/100  
6030/6030 [=====] - 1s 169us/sample - loss: 0.410  
5 - accuracy: 0.8307

Epoch 37/100  
6030/6030 [=====] - 1s 223us/sample - loss: 0.410  
3 - accuracy: 0.8320

Epoch 38/100  
6030/6030 [=====] - 1s 165us/sample - loss: 0.410  
0 - accuracy: 0.8318

Epoch 39/100  
6030/6030 [=====] - 1s 158us/sample - loss: 0.410  
1 - accuracy: 0.8308

Epoch 40/100  
6030/6030 [=====] - 1s 159us/sample - loss: 0.409  
9 - accuracy: 0.8310

Epoch 41/100  
6030/6030 [=====] - 1s 174us/sample - loss: 0.409  
3 - accuracy: 0.8313

Epoch 42/100  
6030/6030 [=====] - 1s 222us/sample - loss: 0.408  
7 - accuracy: 0.8312

Epoch 43/100  
6030/6030 [=====] - 1s 174us/sample - loss: 0.409  
2 - accuracy: 0.8318

Epoch 44/100  
6030/6030 [=====] - 1s 223us/sample - loss: 0.408  
9 - accuracy: 0.8307

Epoch 45/100  
6030/6030 [=====] - 1s 162us/sample - loss: 0.409  
1 - accuracy: 0.8313

Epoch 46/100  
6030/6030 [=====] - 2s 251us/sample - loss: 0.408  
8 - accuracy: 0.8292

Epoch 47/100  
6030/6030 [=====] - 1s 178us/sample - loss: 0.408  
2 - accuracy: 0.8302

Epoch 48/100  
6030/6030 [=====] - 1s 213us/sample - loss: 0.408  
0 - accuracy: 0.8313

Epoch 49/100  
6030/6030 [=====] - 1s 174us/sample - loss: 0.408  
2 - accuracy: 0.8313

Epoch 50/100  
6030/6030 [=====] - 1s 238us/sample - loss: 0.408  
0 - accuracy: 0.8322

Epoch 51/100  
6030/6030 [=====] - 1s 173us/sample - loss: 0.408  
1 - accuracy: 0.8318

Epoch 52/100  
6030/6030 [=====] - 1s 214us/sample - loss: 0.407  
9 - accuracy: 0.8322

Epoch 53/100  
6030/6030 [=====] - 1s 165us/sample - loss: 0.407  
6 - accuracy: 0.8315

Epoch 54/100

```
6030/6030 [=====] - 1s 220us/sample - loss: 0.407
9 - accuracy: 0.8320
Epoch 55/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.407
6 - accuracy: 0.8313
Epoch 56/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.407
7 - accuracy: 0.8322
Epoch 57/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.407
2 - accuracy: 0.8312
Epoch 58/100
6030/6030 [=====] - 1s 225us/sample - loss: 0.407
4 - accuracy: 0.8308
Epoch 59/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.407
4 - accuracy: 0.8300
Epoch 60/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.407
1 - accuracy: 0.8317
Epoch 61/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.407
0 - accuracy: 0.8318
Epoch 62/100
6030/6030 [=====] - 1s 167us/sample - loss: 0.407
1 - accuracy: 0.8323
Epoch 63/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.407
0 - accuracy: 0.8312
Epoch 64/100
6030/6030 [=====] - 1s 221us/sample - loss: 0.407
0 - accuracy: 0.8322
Epoch 65/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.406
9 - accuracy: 0.8317
Epoch 66/100
6030/6030 [=====] - 1s 165us/sample - loss: 0.406
7 - accuracy: 0.8325
Epoch 67/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.406
7 - accuracy: 0.8308
Epoch 68/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.406
7 - accuracy: 0.8325
Epoch 69/100
6030/6030 [=====] - 1s 160us/sample - loss: 0.406
6 - accuracy: 0.8310
Epoch 70/100
6030/6030 [=====] - 1s 161us/sample - loss: 0.406
9 - accuracy: 0.8315 -
Epoch 71/100
6030/6030 [=====] - 1s 166us/sample - loss: 0.406
5 - accuracy: 0.8308
Epoch 72/100
6030/6030 [=====] - 1s 165us/sample - loss: 0.406
7 - accuracy: 0.8325
Epoch 73/100
6030/6030 [=====] - 1s 165us/sample - loss: 0.406
8 - accuracy: 0.8317
Epoch 74/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.406
```

```
5 - accuracy: 0.8308
Epoch 75/100
6030/6030 [=====] - 1s 161us/sample - loss: 0.406
5 - accuracy: 0.8315
Epoch 76/100
6030/6030 [=====] - 1s 157us/sample - loss: 0.406
5 - accuracy: 0.8322
Epoch 77/100
6030/6030 [=====] - 1s 158us/sample - loss: 0.406
1 - accuracy: 0.8313
Epoch 78/100
6030/6030 [=====] - 1s 155us/sample - loss: 0.406
2 - accuracy: 0.8308
Epoch 79/100
6030/6030 [=====] - ETA: 0s - loss: 0.4057 - accuracy: 0.83 - 1s 192us/sample - loss: 0.4062 - accuracy: 0.8318
Epoch 80/100
6030/6030 [=====] - 1s 166us/sample - loss: 0.406
5 - accuracy: 0.8297
Epoch 81/100
6030/6030 [=====] - 1s 160us/sample - loss: 0.405
9 - accuracy: 0.8315
Epoch 82/100
6030/6030 [=====] - 1s 158us/sample - loss: 0.405
5 - accuracy: 0.8310
Epoch 83/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.405
5 - accuracy: 0.8328
Epoch 84/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.405
0 - accuracy: 0.8299
Epoch 85/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.405
0 - accuracy: 0.8320
Epoch 86/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.404
8 - accuracy: 0.8332
Epoch 87/100
6030/6030 [=====] - 1s 237us/sample - loss: 0.404
2 - accuracy: 0.8325
Epoch 88/100
6030/6030 [=====] - 1s 221us/sample - loss: 0.404
2 - accuracy: 0.8310
Epoch 89/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.404
1 - accuracy: 0.8323
Epoch 90/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.403
9 - accuracy: 0.8317
Epoch 91/100
6030/6030 [=====] - 1s 220us/sample - loss: 0.403
8 - accuracy: 0.8320
Epoch 92/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.403
7 - accuracy: 0.8312
Epoch 93/100
6030/6030 [=====] - 1s 227us/sample - loss: 0.402
8 - accuracy: 0.8317
Epoch 94/100
6030/6030 [=====] - 1s 164us/sample - loss: 0.403
1 - accuracy: 0.8330
```

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Epoch 95/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.402
9 - accuracy: 0.8320
Epoch 96/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.402
3 - accuracy: 0.8318
Epoch 97/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.402
5 - accuracy: 0.8332
Epoch 98/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.402
3 - accuracy: 0.8328
Epoch 99/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.401
9 - accuracy: 0.8317
Epoch 100/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.401
6 - accuracy: 0.8322
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 1s 235us/sample - loss: 0.610
3 - accuracy: 0.7900
Epoch 2/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.451
0 - accuracy: 0.7919
Epoch 3/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.440
7 - accuracy: 0.7919
Epoch 4/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.438
1 - accuracy: 0.7919
Epoch 5/100
6030/6030 [=====] - 1s 221us/sample - loss: 0.437
0 - accuracy: 0.7919
Epoch 6/100
6030/6030 [=====] - 1s 167us/sample - loss: 0.435
6 - accuracy: 0.7919
Epoch 7/100
6030/6030 [=====] - 1s 166us/sample - loss: 0.434
5 - accuracy: 0.7919
Epoch 8/100
6030/6030 [=====] - 1s 224us/sample - loss: 0.432
7 - accuracy: 0.7919
Epoch 9/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.430
7 - accuracy: 0.7919
Epoch 10/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.428
7 - accuracy: 0.7983
Epoch 11/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.426
8 - accuracy: 0.8108
Epoch 12/100
6030/6030 [=====] - 1s 221us/sample - loss: 0.425
3 - accuracy: 0.8172
Epoch 13/100
6030/6030 [=====] - 1s 164us/sample - loss: 0.423
9 - accuracy: 0.8181
Epoch 14/100
6030/6030 [=====] - 1s 222us/sample - loss: 0.422
9 - accuracy: 0.8201
```

Epoch 15/100  
6030/6030 [=====] - 1s 223us/sample - loss: 0.421  
9 - accuracy: 0.8242 - loss: 0.416  
Epoch 16/100  
6030/6030 [=====] - 1s 165us/sample - loss: 0.420  
8 - accuracy: 0.8244  
Epoch 17/100  
6030/6030 [=====] - 1s 225us/sample - loss: 0.419  
8 - accuracy: 0.8259  
Epoch 18/100  
6030/6030 [=====] - 1s 237us/sample - loss: 0.419  
3 - accuracy: 0.8265  
Epoch 19/100  
6030/6030 [=====] - ETA: 0s - loss: 0.4175 - accuracy: 0.82 - 1s 161us/sample - loss: 0.4185 - accuracy: 0.8280  
Epoch 20/100  
6030/6030 [=====] - 1s 182us/sample - loss: 0.417  
7 - accuracy: 0.8284  
Epoch 21/100  
6030/6030 [=====] - 1s 221us/sample - loss: 0.417  
2 - accuracy: 0.8302  
Epoch 22/100  
6030/6030 [=====] - 1s 215us/sample - loss: 0.416  
6 - accuracy: 0.8297  
Epoch 23/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.415  
7 - accuracy: 0.8302  
Epoch 24/100  
6030/6030 [=====] - 1s 159us/sample - loss: 0.415  
3 - accuracy: 0.8315  
Epoch 25/100  
6030/6030 [=====] - ETA: 0s - loss: 0.4142 - accuracy: 0.83 - 1s 178us/sample - loss: 0.4152 - accuracy: 0.8307  
Epoch 26/100  
6030/6030 [=====] - 1s 168us/sample - loss: 0.414  
4 - accuracy: 0.8313  
Epoch 27/100  
6030/6030 [=====] - 1s 164us/sample - loss: 0.414  
0 - accuracy: 0.8313  
Epoch 28/100  
6030/6030 [=====] - 1s 217us/sample - loss: 0.413  
4 - accuracy: 0.8312  
Epoch 29/100  
6030/6030 [=====] - 1s 229us/sample - loss: 0.413  
2 - accuracy: 0.8322  
Epoch 30/100  
6030/6030 [=====] - 1s 163us/sample - loss: 0.413  
0 - accuracy: 0.8312  
Epoch 31/100  
6030/6030 [=====] - 1s 163us/sample - loss: 0.412  
4 - accuracy: 0.8323  
Epoch 32/100  
6030/6030 [=====] - 1s 166us/sample - loss: 0.412  
3 - accuracy: 0.8313  
Epoch 33/100  
6030/6030 [=====] - 1s 163us/sample - loss: 0.411  
8 - accuracy: 0.8325  
Epoch 34/100  
6030/6030 [=====] - 1s 220us/sample - loss: 0.411  
6 - accuracy: 0.8328  
Epoch 35/100

```
6030/6030 [=====] - 1s 167us/sample - loss: 0.411
3 - accuracy: 0.8318
Epoch 36/100
6030/6030 [=====] - 1s 224us/sample - loss: 0.410
9 - accuracy: 0.8312
Epoch 37/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.410
7 - accuracy: 0.8332
Epoch 38/100
6030/6030 [=====] - 1s 167us/sample - loss: 0.410
5 - accuracy: 0.8335
Epoch 39/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.410
0 - accuracy: 0.8325
Epoch 40/100
6030/6030 [=====] - 1s 164us/sample - loss: 0.409
8 - accuracy: 0.8333
Epoch 41/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.409
9 - accuracy: 0.8333
Epoch 42/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.409
6 - accuracy: 0.8320
Epoch 43/100
6030/6030 [=====] - 1s 222us/sample - loss: 0.409
0 - accuracy: 0.8333
Epoch 44/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.409
1 - accuracy: 0.8318
Epoch 45/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.408
8 - accuracy: 0.8320
Epoch 46/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.408
4 - accuracy: 0.8315
Epoch 47/100
6030/6030 [=====] - 1s 229us/sample - loss: 0.408
3 - accuracy: 0.8343
Epoch 48/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.408
0 - accuracy: 0.8322
Epoch 49/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.408
1 - accuracy: 0.8338
Epoch 50/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.407
9 - accuracy: 0.8327
Epoch 51/100
6030/6030 [=====] - 1s 161us/sample - loss: 0.407
7 - accuracy: 0.8318
Epoch 52/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.407
4 - accuracy: 0.8312
Epoch 53/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.407
3 - accuracy: 0.8335
Epoch 54/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.407
1 - accuracy: 0.8328
Epoch 55/100
6030/6030 [=====] - 1s 159us/sample - loss: 0.407
```

```
5 - accuracy: 0.8332
Epoch 56/100
6030/6030 [=====] - 1s 164us/sample - loss: 0.407
1 - accuracy: 0.8315
Epoch 57/100
6030/6030 [=====] - 1s 165us/sample - loss: 0.407
0 - accuracy: 0.8323
Epoch 58/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.407
0 - accuracy: 0.8328
Epoch 59/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.406
8 - accuracy: 0.8328
Epoch 60/100
6030/6030 [=====] - 1s 159us/sample - loss: 0.406
8 - accuracy: 0.8327
Epoch 61/100
6030/6030 [=====] - 1s 159us/sample - loss: 0.406
9 - accuracy: 0.8343
Epoch 62/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.406
4 - accuracy: 0.8310
Epoch 63/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.406
7 - accuracy: 0.8317
Epoch 64/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.406
5 - accuracy: 0.8330
Epoch 65/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.406
0 - accuracy: 0.8320
Epoch 66/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.406
3 - accuracy: 0.8313
Epoch 67/100
6030/6030 [=====] - 1s 161us/sample - loss: 0.406
4 - accuracy: 0.8353
Epoch 68/100
6030/6030 [=====] - 1s 166us/sample - loss: 0.406
3 - accuracy: 0.8335
Epoch 69/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.406
1 - accuracy: 0.8327
Epoch 70/100
6030/6030 [=====] - 1s 167us/sample - loss: 0.405
7 - accuracy: 0.8330
Epoch 71/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.405
6 - accuracy: 0.8340
Epoch 72/100
6030/6030 [=====] - 1s 160us/sample - loss: 0.405
8 - accuracy: 0.8323
Epoch 73/100
6030/6030 [=====] - 1s 163us/sample - loss: 0.405
8 - accuracy: 0.8318
Epoch 74/100
6030/6030 [=====] - 1s 167us/sample - loss: 0.405
5 - accuracy: 0.8322
Epoch 75/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.405
6 - accuracy: 0.8330
```

Epoch 76/100  
6030/6030 [=====] - 1s 185us/sample - loss: 0.405  
6 - accuracy: 0.8340  
Epoch 77/100  
6030/6030 [=====] - 1s 166us/sample - loss: 0.405  
6 - accuracy: 0.8325  
Epoch 78/100  
6030/6030 [=====] - 1s 192us/sample - loss: 0.405  
8 - accuracy: 0.8332  
Epoch 79/100  
6030/6030 [=====] - 1s 168us/sample - loss: 0.405  
8 - accuracy: 0.8333  
Epoch 80/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.405  
5 - accuracy: 0.8323  
Epoch 81/100  
6030/6030 [=====] - 1s 171us/sample - loss: 0.405  
6 - accuracy: 0.8330  
Epoch 82/100  
6030/6030 [=====] - 1s 164us/sample - loss: 0.405  
5 - accuracy: 0.8325  
Epoch 83/100  
6030/6030 [=====] - 1s 162us/sample - loss: 0.405  
5 - accuracy: 0.8327  
Epoch 84/100  
6030/6030 [=====] - 1s 166us/sample - loss: 0.405  
4 - accuracy: 0.8318  
Epoch 85/100  
6030/6030 [=====] - 1s 180us/sample - loss: 0.405  
6 - accuracy: 0.8338  
Epoch 86/100  
6030/6030 [=====] - 1s 222us/sample - loss: 0.405  
5 - accuracy: 0.8317  
Epoch 87/100  
6030/6030 [=====] - 1s 177us/sample - loss: 0.405  
7 - accuracy: 0.8338  
Epoch 88/100  
6030/6030 [=====] - 2s 262us/sample - loss: 0.405  
5 - accuracy: 0.8330  
Epoch 89/100  
6030/6030 [=====] - 1s 160us/sample - loss: 0.405  
3 - accuracy: 0.8347  
Epoch 90/100  
6030/6030 [=====] - 1s 164us/sample - loss: 0.405  
3 - accuracy: 0.8313  
Epoch 91/100  
6030/6030 [=====] - 1s 239us/sample - loss: 0.405  
3 - accuracy: 0.8338  
Epoch 92/100  
6030/6030 [=====] - 1s 225us/sample - loss: 0.405  
3 - accuracy: 0.8335  
Epoch 93/100  
6030/6030 [=====] - ETA: 0s - loss: 0.4070 - accuracy: 0.83 - 1s 181us/sample - loss: 0.4048 - accuracy: 0.8343  
Epoch 94/100  
6030/6030 [=====] - 1s 233us/sample - loss: 0.405  
2 - accuracy: 0.8350  
Epoch 95/100  
6030/6030 [=====] - 2s 266us/sample - loss: 0.404  
8 - accuracy: 0.8325  
Epoch 96/100



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6030/6030 [=====] - 1s 180us/sample - loss: 0.404
9 - accuracy: 0.8337
Epoch 97/100
6030/6030 [=====] - 1s 216us/sample - loss: 0.404
8 - accuracy: 0.8328
Epoch 98/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.404
8 - accuracy: 0.8333
Epoch 99/100
6030/6030 [=====] - 2s 278us/sample - loss: 0.404
9 - accuracy: 0.8328
Epoch 100/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.404
7 - accuracy: 0.8335
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 262us/sample - loss: 0.625
2 - accuracy: 0.7950
Epoch 2/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.470
7 - accuracy: 0.7954
Epoch 3/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.440
9 - accuracy: 0.7954
Epoch 4/100
6030/6030 [=====] - 1s 226us/sample - loss: 0.434
5 - accuracy: 0.7954
Epoch 5/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.431
0 - accuracy: 0.7954
Epoch 6/100
6030/6030 [=====] - 2s 286us/sample - loss: 0.428
6 - accuracy: 0.7954 - loss: 0.428
Epoch 7/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.426
4 - accuracy: 0.7954
Epoch 8/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.424
3 - accuracy: 0.7954
Epoch 9/100
6030/6030 [=====] - 1s 227us/sample - loss: 0.422
2 - accuracy: 0.7954
Epoch 10/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.420
7 - accuracy: 0.8058
Epoch 11/100
6030/6030 [=====] - 1s 232us/sample - loss: 0.419
0 - accuracy: 0.8209
Epoch 12/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.417
7 - accuracy: 0.8234
Epoch 13/100
6030/6030 [=====] - 1s 237us/sample - loss: 0.416
8 - accuracy: 0.8259
Epoch 14/100
6030/6030 [=====] - 1s 230us/sample - loss: 0.415
7 - accuracy: 0.8274
Epoch 15/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.414
7 - accuracy: 0.8294
Epoch 16/100
```

```
6030/6030 [=====] - 1s 243us/sample - loss: 0.413
7 - accuracy: 0.8292
Epoch 17/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.413
1 - accuracy: 0.8295
Epoch 18/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.412
3 - accuracy: 0.8302
Epoch 19/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.411
6 - accuracy: 0.8303
Epoch 20/100
6030/6030 [=====] - 1s 222us/sample - loss: 0.410
9 - accuracy: 0.8299
Epoch 21/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.410
5 - accuracy: 0.8305
Epoch 22/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.409
7 - accuracy: 0.8317
Epoch 23/100
6030/6030 [=====] - 1s 234us/sample - loss: 0.409
3 - accuracy: 0.8310
Epoch 24/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.408
6 - accuracy: 0.8328
Epoch 25/100
6030/6030 [=====] - 1s 230us/sample - loss: 0.408
2 - accuracy: 0.8323
Epoch 26/100
6030/6030 [=====] - 2s 267us/sample - loss: 0.407
7 - accuracy: 0.8323
Epoch 27/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.407
2 - accuracy: 0.8338
Epoch 28/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.406
5 - accuracy: 0.8328
Epoch 29/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.406
2 - accuracy: 0.8343
Epoch 30/100
6030/6030 [=====] - 1s 222us/sample - loss: 0.405
8 - accuracy: 0.8333
Epoch 31/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.405
6 - accuracy: 0.8335
Epoch 32/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.405
1 - accuracy: 0.8330
Epoch 33/100
6030/6030 [=====] - 1s 241us/sample - loss: 0.404
7 - accuracy: 0.8347
Epoch 34/100
6030/6030 [=====] - 1s 220us/sample - loss: 0.404
6 - accuracy: 0.8322
Epoch 35/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.404
0 - accuracy: 0.8328
Epoch 36/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.403
```

```
8 - accuracy: 0.8327
Epoch 37/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.403
5 - accuracy: 0.8342
Epoch 38/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.403
4 - accuracy: 0.8333
Epoch 39/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.402
9 - accuracy: 0.8335
Epoch 40/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.403
0 - accuracy: 0.8335
Epoch 41/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.402
8 - accuracy: 0.8345
Epoch 42/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.402
6 - accuracy: 0.8332
Epoch 43/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.402
3 - accuracy: 0.8340
Epoch 44/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.402
2 - accuracy: 0.8340
Epoch 45/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.401
9 - accuracy: 0.8345
Epoch 46/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.401
6 - accuracy: 0.8337
Epoch 47/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.401
7 - accuracy: 0.8337
Epoch 48/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.401
5 - accuracy: 0.8347
Epoch 49/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.401
5 - accuracy: 0.8340
Epoch 50/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.400
7 - accuracy: 0.8353
Epoch 51/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.401
2 - accuracy: 0.8358
Epoch 52/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.401
1 - accuracy: 0.8352
Epoch 53/100
6030/6030 [=====] - 2s 270us/sample - loss: 0.400
8 - accuracy: 0.8345
Epoch 54/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.400
8 - accuracy: 0.8335
Epoch 55/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.400
7 - accuracy: 0.8352
Epoch 56/100
6030/6030 [=====] - 1s 218us/sample - loss: 0.400
5 - accuracy: 0.8358
```

Epoch 57/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.400  
7 - accuracy: 0.8330

Epoch 58/100  
6030/6030 [=====] - 2s 294us/sample - loss: 0.400  
2 - accuracy: 0.8345

Epoch 59/100  
6030/6030 [=====] - 1s 211us/sample - loss: 0.400  
5 - accuracy: 0.8333

Epoch 60/100  
6030/6030 [=====] - 1s 238us/sample - loss: 0.400  
4 - accuracy: 0.8337

Epoch 61/100  
6030/6030 [=====] - 1s 212us/sample - loss: 0.400  
1 - accuracy: 0.8338

Epoch 62/100  
6030/6030 [=====] - 1s 180us/sample - loss: 0.400  
1 - accuracy: 0.8343

Epoch 63/100  
6030/6030 [=====] - 2s 256us/sample - loss: 0.400  
1 - accuracy: 0.8348

Epoch 64/100  
6030/6030 [=====] - 2s 252us/sample - loss: 0.400  
0 - accuracy: 0.8335 - loss: 0.3979 - ac

Epoch 65/100  
6030/6030 [=====] - 1s 244us/sample - loss: 0.399  
8 - accuracy: 0.8333

Epoch 66/100  
6030/6030 [=====] - 2s 323us/sample - loss: 0.399  
7 - accuracy: 0.8335

Epoch 67/100  
6030/6030 [=====] - 2s 290us/sample - loss: 0.399  
9 - accuracy: 0.8348

Epoch 68/100  
6030/6030 [=====] - 2s 276us/sample - loss: 0.399  
7 - accuracy: 0.8333

Epoch 69/100  
6030/6030 [=====] - 2s 280us/sample - loss: 0.399  
6 - accuracy: 0.8318

Epoch 70/100  
6030/6030 [=====] - 2s 262us/sample - loss: 0.399  
8 - accuracy: 0.8333

Epoch 71/100  
6030/6030 [=====] - 2s 260us/sample - loss: 0.399  
7 - accuracy: 0.8340

Epoch 72/100  
6030/6030 [=====] - 2s 287us/sample - loss: 0.399  
5 - accuracy: 0.8338

Epoch 73/100  
6030/6030 [=====] - 2s 263us/sample - loss: 0.399  
5 - accuracy: 0.8333

Epoch 74/100  
6030/6030 [=====] - 2s 279us/sample - loss: 0.399  
5 - accuracy: 0.8335

Epoch 75/100  
6030/6030 [=====] - 1s 211us/sample - loss: 0.399  
1 - accuracy: 0.8358

Epoch 76/100  
6030/6030 [=====] - 1s 222us/sample - loss: 0.399  
5 - accuracy: 0.8348

Epoch 77/100

```
6030/6030 [=====] - 1s 183us/sample - loss: 0.399
3 - accuracy: 0.8337
Epoch 78/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.399
1 - accuracy: 0.8348
Epoch 79/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.399
1 - accuracy: 0.8322
Epoch 80/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.399
6 - accuracy: 0.8340
Epoch 81/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.399
2 - accuracy: 0.8337
Epoch 82/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.399
1 - accuracy: 0.8345
Epoch 83/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.399
0 - accuracy: 0.8332
Epoch 84/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.399
1 - accuracy: 0.8323
Epoch 85/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.399
0 - accuracy: 0.8353
Epoch 86/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.399
0 - accuracy: 0.8348
Epoch 87/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.399
0 - accuracy: 0.8338
Epoch 88/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.399
1 - accuracy: 0.8342
Epoch 89/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.398
8 - accuracy: 0.8343
Epoch 90/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.399
2 - accuracy: 0.8345
Epoch 91/100
6030/6030 [=====] - 2s 258us/sample - loss: 0.399
0 - accuracy: 0.8338
Epoch 92/100
6030/6030 [=====] - 2s 279us/sample - loss: 0.398
9 - accuracy: 0.8338
Epoch 93/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.399
0 - accuracy: 0.8342
Epoch 94/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.398
8 - accuracy: 0.8353
Epoch 95/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.398
9 - accuracy: 0.8330
Epoch 96/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.398
9 - accuracy: 0.8337
Epoch 97/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.398
```

```
8 - accuracy: 0.8342
Epoch 98/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.398
7 - accuracy: 0.8347
Epoch 99/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.398
6 - accuracy: 0.8357
Epoch 100/100
6030/6030 [=====] - 2s 276us/sample - loss: 0.398
1 - accuracy: 0.8335
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 300us/sample - loss: 0.651
8 - accuracy: 0.7876
Epoch 2/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.540
3 - accuracy: 0.7910
Epoch 3/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.468
0 - accuracy: 0.7910
Epoch 4/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.451
3 - accuracy: 0.7910
Epoch 5/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.443
8 - accuracy: 0.7910
Epoch 6/100
6030/6030 [=====] - 1s 222us/sample - loss: 0.439
5 - accuracy: 0.7910
Epoch 7/100
6030/6030 [=====] - 1s 225us/sample - loss: 0.436
9 - accuracy: 0.7910
Epoch 8/100
6030/6030 [=====] - ETA: 0s - loss: 0.4338 - accuracy: 0.79 - 1s 201us/sample - loss: 0.4351 - accuracy: 0.7910
Epoch 9/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.433
6 - accuracy: 0.7910
Epoch 10/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.432
1 - accuracy: 0.7910
Epoch 11/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.430
7 - accuracy: 0.7910
Epoch 12/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.429
2 - accuracy: 0.7910
Epoch 13/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.427
8 - accuracy: 0.7910
Epoch 14/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.426
3 - accuracy: 0.7910
Epoch 15/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.425
0 - accuracy: 0.8046
Epoch 16/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.423
9 - accuracy: 0.8181
Epoch 17/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.423
```

```
0 - accuracy: 0.8216
Epoch 18/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.421
9 - accuracy: 0.8216
Epoch 19/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.421
3 - accuracy: 0.8219
Epoch 20/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.420
5 - accuracy: 0.8232
Epoch 21/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.419
9 - accuracy: 0.8235
Epoch 22/100
6030/6030 [=====] - 1s 246us/sample - loss: 0.419
2 - accuracy: 0.8264
Epoch 23/100
6030/6030 [=====] - 2s 269us/sample - loss: 0.418
4 - accuracy: 0.8267
Epoch 24/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.418
1 - accuracy: 0.8262
Epoch 25/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.417
6 - accuracy: 0.8267
Epoch 26/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.416
9 - accuracy: 0.8269
Epoch 27/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.416
5 - accuracy: 0.8282
Epoch 28/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.415
5 - accuracy: 0.8292
Epoch 29/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.415
6 - accuracy: 0.8290
Epoch 30/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.415
2 - accuracy: 0.8290
Epoch 31/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.414
8 - accuracy: 0.8292
Epoch 32/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.414
4 - accuracy: 0.8280
Epoch 33/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.414
0 - accuracy: 0.8292
Epoch 34/100
6030/6030 [=====] - 1s 232us/sample - loss: 0.413
6 - accuracy: 0.8287
Epoch 35/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.413
3 - accuracy: 0.8302
Epoch 36/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.413
0 - accuracy: 0.8299
Epoch 37/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.412
7 - accuracy: 0.8307
```

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Epoch 38/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.412
5 - accuracy: 0.8294
Epoch 39/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.412
2 - accuracy: 0.8299
Epoch 40/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.411
8 - accuracy: 0.8303
Epoch 41/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.411
6 - accuracy: 0.8307
Epoch 42/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.411
3 - accuracy: 0.8303
Epoch 43/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.411
1 - accuracy: 0.8310
Epoch 44/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.411
0 - accuracy: 0.8313
Epoch 45/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.410
7 - accuracy: 0.8305
Epoch 46/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.410
5 - accuracy: 0.8317
Epoch 47/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.410
4 - accuracy: 0.8313
Epoch 48/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.410
2 - accuracy: 0.8308
Epoch 49/100
6030/6030 [=====] - 1s 244us/sample - loss: 0.410
0 - accuracy: 0.8313 - loss: 0.4100 - accuracy: 0.
Epoch 50/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.409
9 - accuracy: 0.8303
Epoch 51/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.409
8 - accuracy: 0.8317
Epoch 52/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.409
7 - accuracy: 0.8303
Epoch 53/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.409
5 - accuracy: 0.8310
Epoch 54/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.409
4 - accuracy: 0.8312
Epoch 55/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.409
4 - accuracy: 0.8310
Epoch 56/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.409
1 - accuracy: 0.8292
Epoch 57/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.408
9 - accuracy: 0.8308
Epoch 58/100
```



```
6030/6030 [=====] - 1s 191us/sample - loss: 0.409
0 - accuracy: 0.8307
Epoch 59/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.408
5 - accuracy: 0.8308
Epoch 60/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.408
6 - accuracy: 0.8307
Epoch 61/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.408
4 - accuracy: 0.8317
Epoch 62/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.408
3 - accuracy: 0.8312
Epoch 63/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.408
0 - accuracy: 0.8305
Epoch 64/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.408
1 - accuracy: 0.8323
Epoch 65/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.407
8 - accuracy: 0.8312
Epoch 66/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.407
7 - accuracy: 0.8315
Epoch 67/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.407
6 - accuracy: 0.8308
Epoch 68/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.407
5 - accuracy: 0.8313
Epoch 69/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.407
4 - accuracy: 0.8308
Epoch 70/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.407
4 - accuracy: 0.8305
Epoch 71/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.407
2 - accuracy: 0.8303
Epoch 72/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.407
0 - accuracy: 0.8318
Epoch 73/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.406
9 - accuracy: 0.8315
Epoch 74/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.406
8 - accuracy: 0.8295
Epoch 75/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.406
8 - accuracy: 0.8312
Epoch 76/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.406
8 - accuracy: 0.8308
Epoch 77/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.406
8 - accuracy: 0.8318
Epoch 78/100
6030/6030 [=====] - 1s 230us/sample - loss: 0.406
```

```
6 - accuracy: 0.8310
Epoch 79/100
6030/6030 [=====] - 2s 289us/sample - loss: 0.406
5 - accuracy: 0.8317
Epoch 80/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.406
4 - accuracy: 0.8312
Epoch 81/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.406
5 - accuracy: 0.8310
Epoch 82/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.406
3 - accuracy: 0.8307
Epoch 83/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.406
0 - accuracy: 0.8315
Epoch 84/100
6030/6030 [=====] - 1s 220us/sample - loss: 0.406
3 - accuracy: 0.8312
Epoch 85/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.406
1 - accuracy: 0.8302
Epoch 86/100
6030/6030 [=====] - 2s 298us/sample - loss: 0.405
9 - accuracy: 0.8308
Epoch 87/100
6030/6030 [=====] - 1s 228us/sample - loss: 0.406
1 - accuracy: 0.8315
Epoch 88/100
6030/6030 [=====] - 1s 247us/sample - loss: 0.405
9 - accuracy: 0.8320
Epoch 89/100
6030/6030 [=====] - 1s 240us/sample - loss: 0.405
8 - accuracy: 0.8310
Epoch 90/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.405
8 - accuracy: 0.8315
Epoch 91/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.405
8 - accuracy: 0.8322
Epoch 92/100
6030/6030 [=====] - 1s 222us/sample - loss: 0.405
7 - accuracy: 0.8312
Epoch 93/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.405
5 - accuracy: 0.8302
Epoch 94/100
6030/6030 [=====] - 1s 225us/sample - loss: 0.405
5 - accuracy: 0.8320
Epoch 95/100
6030/6030 [=====] - 1s 234us/sample - loss: 0.405
4 - accuracy: 0.8315
Epoch 96/100
6030/6030 [=====] - 2s 297us/sample - loss: 0.405
4 - accuracy: 0.8308
Epoch 97/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.405
4 - accuracy: 0.8300
Epoch 98/100
6030/6030 [=====] - 2s 300us/sample - loss: 0.405
3 - accuracy: 0.8312
```

```
Epoch 99/100
6030/6030 [=====] - 1s 227us/sample - loss: 0.405
1 - accuracy: 0.8317
Epoch 100/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.405
2 - accuracy: 0.8322
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 278us/sample - loss: 0.633
4 - accuracy: 0.7915
Epoch 2/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.481
8 - accuracy: 0.7935
Epoch 3/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.444
1 - accuracy: 0.7935
Epoch 4/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.438
0 - accuracy: 0.7935
Epoch 5/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.435
0 - accuracy: 0.7935
Epoch 6/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.433
0 - accuracy: 0.7935
Epoch 7/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.431
8 - accuracy: 0.7935
Epoch 8/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.430
4 - accuracy: 0.7935
Epoch 9/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.428
8 - accuracy: 0.7935
Epoch 10/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.427
4 - accuracy: 0.7935
Epoch 11/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.425
9 - accuracy: 0.7935
Epoch 12/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.424
3 - accuracy: 0.8088
Epoch 13/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.423
0 - accuracy: 0.8159
Epoch 14/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.421
7 - accuracy: 0.8217
Epoch 15/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.420
7 - accuracy: 0.8245
Epoch 16/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.419
4 - accuracy: 0.8249
Epoch 17/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.418
5 - accuracy: 0.8255
Epoch 18/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.417
6 - accuracy: 0.8274
```

Epoch 19/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.416  
6 - accuracy: 0.8284

Epoch 20/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.415  
9 - accuracy: 0.8289

Epoch 21/100  
6030/6030 [=====] - 1s 185us/sample - loss: 0.415  
3 - accuracy: 0.8297

Epoch 22/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.414  
5 - accuracy: 0.8318

Epoch 23/100  
6030/6030 [=====] - 1s 185us/sample - loss: 0.413  
8 - accuracy: 0.8313

Epoch 24/100  
6030/6030 [=====] - 1s 187us/sample - loss: 0.413  
3 - accuracy: 0.8333

Epoch 25/100  
6030/6030 [=====] - 1s 205us/sample - loss: 0.412  
6 - accuracy: 0.8330

Epoch 26/100  
6030/6030 [=====] - 1s 226us/sample - loss: 0.412  
1 - accuracy: 0.8335

Epoch 27/100  
6030/6030 [=====] - 1s 215us/sample - loss: 0.411  
4 - accuracy: 0.8333

Epoch 28/100  
6030/6030 [=====] - 1s 224us/sample - loss: 0.411  
3 - accuracy: 0.8342

Epoch 29/100  
6030/6030 [=====] - 1s 207us/sample - loss: 0.410  
8 - accuracy: 0.8337

Epoch 30/100  
6030/6030 [=====] - 1s 204us/sample - loss: 0.410  
5 - accuracy: 0.8343

Epoch 31/100  
6030/6030 [=====] - 1s 191us/sample - loss: 0.409  
9 - accuracy: 0.8335

Epoch 32/100  
6030/6030 [=====] - 1s 207us/sample - loss: 0.409  
7 - accuracy: 0.8343

Epoch 33/100  
6030/6030 [=====] - 2s 279us/sample - loss: 0.409  
1 - accuracy: 0.8337

Epoch 34/100  
6030/6030 [=====] - 1s 245us/sample - loss: 0.408  
8 - accuracy: 0.8343

Epoch 35/100  
6030/6030 [=====] - 1s 222us/sample - loss: 0.408  
6 - accuracy: 0.8340

Epoch 36/100  
6030/6030 [=====] - 1s 227us/sample - loss: 0.408  
4 - accuracy: 0.8345

Epoch 37/100  
6030/6030 [=====] - 1s 203us/sample - loss: 0.408  
0 - accuracy: 0.8347

Epoch 38/100  
6030/6030 [=====] - 1s 193us/sample - loss: 0.408  
0 - accuracy: 0.8340

Epoch 39/100

```
6030/6030 [=====] - 1s 220us/sample - loss: 0.407
5 - accuracy: 0.8348
Epoch 40/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.407
6 - accuracy: 0.8357
Epoch 41/100
6030/6030 [=====] - 1s 224us/sample - loss: 0.407
3 - accuracy: 0.8365
Epoch 42/100
6030/6030 [=====] - 1s 227us/sample - loss: 0.407
1 - accuracy: 0.8350
Epoch 43/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.406
7 - accuracy: 0.8355
Epoch 44/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.406
5 - accuracy: 0.8350
Epoch 45/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.406
0 - accuracy: 0.8363
Epoch 46/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.405
6 - accuracy: 0.8345
Epoch 47/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.405
9 - accuracy: 0.8347
Epoch 48/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.405
2 - accuracy: 0.8357
Epoch 49/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.405
0 - accuracy: 0.8352
Epoch 50/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.404
4 - accuracy: 0.8363
Epoch 51/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.404
4 - accuracy: 0.8362
Epoch 52/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.403
9 - accuracy: 0.8370
Epoch 53/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.403
8 - accuracy: 0.8355
Epoch 54/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.403
2 - accuracy: 0.8368
Epoch 55/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.403
1 - accuracy: 0.8357
Epoch 56/100
6030/6030 [=====] - ETA: 0s - loss: 0.4027 - accuracy: 0.83 - 1s 218us/sample - loss: 0.4028 - accuracy: 0.8362
Epoch 57/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.402
3 - accuracy: 0.8362
Epoch 58/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.402
3 - accuracy: 0.8365
Epoch 59/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.402
```

```
0 - accuracy: 0.8357
Epoch 60/100
6030/6030 [=====] - 2s 294us/sample - loss: 0.401
5 - accuracy: 0.8371
Epoch 61/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.401
3 - accuracy: 0.8358
Epoch 62/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.401
1 - accuracy: 0.8367
Epoch 63/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.400
8 - accuracy: 0.8347
Epoch 64/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.400
8 - accuracy: 0.8355
Epoch 65/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.400
4 - accuracy: 0.8353
Epoch 66/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.400
0 - accuracy: 0.8363
Epoch 67/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.400
1 - accuracy: 0.8368
Epoch 68/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.399
6 - accuracy: 0.8352
Epoch 69/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.399
7 - accuracy: 0.8352
Epoch 70/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.399
3 - accuracy: 0.8353
Epoch 71/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.399
2 - accuracy: 0.8370
Epoch 72/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.399
1 - accuracy: 0.8362
Epoch 73/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.398
8 - accuracy: 0.8363
Epoch 74/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.398
7 - accuracy: 0.8360
Epoch 75/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.398
3 - accuracy: 0.8363
Epoch 76/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.398
2 - accuracy: 0.8363
Epoch 77/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.398
4 - accuracy: 0.8357
Epoch 78/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.398
2 - accuracy: 0.8357
Epoch 79/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.398
2 - accuracy: 0.8365
```

Epoch 80/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.397  
9 - accuracy: 0.8367  
Epoch 81/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.397  
6 - accuracy: 0.8371  
Epoch 82/100  
6030/6030 [=====] - 1s 191us/sample - loss: 0.397  
5 - accuracy: 0.8368  
Epoch 83/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.397  
6 - accuracy: 0.8365  
Epoch 84/100  
6030/6030 [=====] - 1s 191us/sample - loss: 0.397  
4 - accuracy: 0.8357  
Epoch 85/100  
6030/6030 [=====] - 1s 184us/sample - loss: 0.397  
5 - accuracy: 0.8365  
Epoch 86/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.396  
8 - accuracy: 0.8373  
Epoch 87/100  
6030/6030 [=====] - 1s 193us/sample - loss: 0.397  
1 - accuracy: 0.8370  
Epoch 88/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.396  
7 - accuracy: 0.8370  
Epoch 89/100  
6030/6030 [=====] - 1s 203us/sample - loss: 0.396  
7 - accuracy: 0.8378  
Epoch 90/100  
6030/6030 [=====] - 1s 190us/sample - loss: 0.396  
6 - accuracy: 0.8357  
Epoch 91/100  
6030/6030 [=====] - 1s 180us/sample - loss: 0.396  
9 - accuracy: 0.8357  
Epoch 92/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.396  
6 - accuracy: 0.8390  
Epoch 93/100  
6030/6030 [=====] - 2s 252us/sample - loss: 0.396  
6 - accuracy: 0.8363  
Epoch 94/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.396  
5 - accuracy: 0.8368  
Epoch 95/100  
6030/6030 [=====] - 1s 208us/sample - loss: 0.396  
4 - accuracy: 0.8388  
Epoch 96/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.396  
4 - accuracy: 0.8357  
Epoch 97/100  
6030/6030 [=====] - 1s 229us/sample - loss: 0.396  
1 - accuracy: 0.8362  
Epoch 98/100  
6030/6030 [=====] - 1s 204us/sample - loss: 0.396  
3 - accuracy: 0.8381  
Epoch 99/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.396  
0 - accuracy: 0.8370  
Epoch 100/100

```
6030/6030 [=====] - 1s 199us/sample - loss: 0.396
1 - accuracy: 0.8368
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 284us/sample - loss: 0.625
5 - accuracy: 0.7919
Epoch 2/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.476
5 - accuracy: 0.7925
Epoch 3/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.444
9 - accuracy: 0.7925
Epoch 4/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.439
2 - accuracy: 0.7925
Epoch 5/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.435
6 - accuracy: 0.7925
Epoch 6/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.432
4 - accuracy: 0.7925
Epoch 7/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.429
8 - accuracy: 0.7925
Epoch 8/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.427
7 - accuracy: 0.7925
Epoch 9/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.425
8 - accuracy: 0.7973
Epoch 10/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.424
6 - accuracy: 0.8149
Epoch 11/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.423
3 - accuracy: 0.8191
Epoch 12/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.422
4 - accuracy: 0.8234
Epoch 13/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.421
6 - accuracy: 0.8237
Epoch 14/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.420
7 - accuracy: 0.8245
Epoch 15/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.419
8 - accuracy: 0.8257
Epoch 16/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.419
2 - accuracy: 0.8277
Epoch 17/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.418
6 - accuracy: 0.8272
Epoch 18/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.418
1 - accuracy: 0.8277
Epoch 19/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.417
6 - accuracy: 0.8274
Epoch 20/100
```



```
6030/6030 [=====] - 1s 215us/sample - loss: 0.417
0 - accuracy: 0.8275
Epoch 21/100
6030/6030 [=====] - 2s 249us/sample - loss: 0.416
6 - accuracy: 0.8280
Epoch 22/100
6030/6030 [=====] - 2s 270us/sample - loss: 0.415
7 - accuracy: 0.8294
Epoch 23/100
6030/6030 [=====] - 1s 237us/sample - loss: 0.415
4 - accuracy: 0.8282
Epoch 24/100
6030/6030 [=====] - 1s 232us/sample - loss: 0.415
0 - accuracy: 0.8290
Epoch 25/100
6030/6030 [=====] - 1s 228us/sample - loss: 0.414
5 - accuracy: 0.8282
Epoch 26/100
6030/6030 [=====] - 1s 229us/sample - loss: 0.413
9 - accuracy: 0.8303
Epoch 27/100
6030/6030 [=====] - 1s 228us/sample - loss: 0.413
5 - accuracy: 0.8307
Epoch 28/100
6030/6030 [=====] - 2s 252us/sample - loss: 0.413
0 - accuracy: 0.8295
Epoch 29/100
6030/6030 [=====] - 1s 248us/sample - loss: 0.412
8 - accuracy: 0.8302
Epoch 30/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.412
3 - accuracy: 0.8300
Epoch 31/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.412
1 - accuracy: 0.8300
Epoch 32/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.411
4 - accuracy: 0.8307
Epoch 33/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.411
2 - accuracy: 0.8308
Epoch 34/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.411
4 - accuracy: 0.8308
Epoch 35/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.411
0 - accuracy: 0.8307
Epoch 36/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.410
7 - accuracy: 0.8303
Epoch 37/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.410
5 - accuracy: 0.8303
Epoch 38/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.410
4 - accuracy: 0.8299
Epoch 39/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.410
2 - accuracy: 0.8310
Epoch 40/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.409
```

```
9 - accuracy: 0.8307
Epoch 41/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.409
8 - accuracy: 0.8307
Epoch 42/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.409
7 - accuracy: 0.8305
Epoch 43/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.409
6 - accuracy: 0.8305
Epoch 44/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.409
4 - accuracy: 0.8300
Epoch 45/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.409
1 - accuracy: 0.8299
Epoch 46/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.409
2 - accuracy: 0.8305
Epoch 47/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.409
0 - accuracy: 0.8322
Epoch 48/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.408
9 - accuracy: 0.8308
Epoch 49/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.408
6 - accuracy: 0.8312
Epoch 50/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.408
4 - accuracy: 0.8318
Epoch 51/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.408
6 - accuracy: 0.8310
Epoch 52/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.408
5 - accuracy: 0.8317
Epoch 53/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.408
1 - accuracy: 0.8305
Epoch 54/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.408
4 - accuracy: 0.8315
Epoch 55/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.408
1 - accuracy: 0.8307
Epoch 56/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.408
2 - accuracy: 0.8310
Epoch 57/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.408
1 - accuracy: 0.8308
Epoch 58/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.407
8 - accuracy: 0.8317
Epoch 59/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.407
7 - accuracy: 0.8303
Epoch 60/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.407
6 - accuracy: 0.8310
```

Epoch 61/100  
6030/6030 [=====] - 1s 170us/sample - loss: 0.407  
7 - accuracy: 0.8303

Epoch 62/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.407  
6 - accuracy: 0.8305

Epoch 63/100  
6030/6030 [=====] - 1s 176us/sample - loss: 0.407  
6 - accuracy: 0.8297

Epoch 64/100  
6030/6030 [=====] - 1s 177us/sample - loss: 0.407  
4 - accuracy: 0.8297

Epoch 65/100  
6030/6030 [=====] - 1s 180us/sample - loss: 0.407  
2 - accuracy: 0.8322

Epoch 66/100  
6030/6030 [=====] - 1s 179us/sample - loss: 0.407  
3 - accuracy: 0.8297

Epoch 67/100  
6030/6030 [=====] - 1s 177us/sample - loss: 0.407  
3 - accuracy: 0.8308

Epoch 68/100  
6030/6030 [=====] - 1s 175us/sample - loss: 0.407  
2 - accuracy: 0.8312

Epoch 69/100  
6030/6030 [=====] - 1s 174us/sample - loss: 0.407  
0 - accuracy: 0.8315

Epoch 70/100  
6030/6030 [=====] - 1s 176us/sample - loss: 0.407  
1 - accuracy: 0.8313

Epoch 71/100  
6030/6030 [=====] - 1s 180us/sample - loss: 0.406  
9 - accuracy: 0.8308

Epoch 72/100  
6030/6030 [=====] - 1s 182us/sample - loss: 0.407  
1 - accuracy: 0.8312

Epoch 73/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.406  
8 - accuracy: 0.8300

Epoch 74/100  
6030/6030 [=====] - 1s 191us/sample - loss: 0.406  
8 - accuracy: 0.8313

Epoch 75/100  
6030/6030 [=====] - 1s 189us/sample - loss: 0.407  
1 - accuracy: 0.8307

Epoch 76/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.407  
0 - accuracy: 0.8303

Epoch 77/100  
6030/6030 [=====] - 1s 198us/sample - loss: 0.406  
6 - accuracy: 0.8299

Epoch 78/100  
6030/6030 [=====] - 1s 180us/sample - loss: 0.406  
6 - accuracy: 0.8299

Epoch 79/100  
6030/6030 [=====] - 1s 182us/sample - loss: 0.406  
6 - accuracy: 0.8325

Epoch 80/100  
6030/6030 [=====] - 1s 171us/sample - loss: 0.406  
4 - accuracy: 0.8302

Epoch 81/100

```
6030/6030 [=====] - 1s 185us/sample - loss: 0.406
5 - accuracy: 0.8302
Epoch 82/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.406
3 - accuracy: 0.8333
Epoch 83/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.406
5 - accuracy: 0.8317
Epoch 84/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.406
2 - accuracy: 0.8307
Epoch 85/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.406
4 - accuracy: 0.8320
Epoch 86/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.406
2 - accuracy: 0.8312
Epoch 87/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.405
8 - accuracy: 0.8337
Epoch 88/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.406
2 - accuracy: 0.8315
Epoch 89/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.406
1 - accuracy: 0.8307
Epoch 90/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.406
2 - accuracy: 0.8303
Epoch 91/100
6030/6030 [=====] - 2s 278us/sample - loss: 0.405
7 - accuracy: 0.8315
Epoch 92/100
6030/6030 [=====] - 2s 258us/sample - loss: 0.406
1 - accuracy: 0.8305
Epoch 93/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.406
2 - accuracy: 0.8308
Epoch 94/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.406
0 - accuracy: 0.8305
Epoch 95/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.406
2 - accuracy: 0.8313
Epoch 96/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.406
1 - accuracy: 0.8323
Epoch 97/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.405
9 - accuracy: 0.8312
Epoch 98/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.405
6 - accuracy: 0.8320
Epoch 99/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.405
8 - accuracy: 0.8315
Epoch 100/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.405
9 - accuracy: 0.8312
Train on 6030 samples
Epoch 1/100
```

```
6030/6030 [=====] - 2s 287us/sample - loss: 0.628
6 - accuracy: 0.7876
Epoch 2/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.478
3 - accuracy: 0.7877
Epoch 3/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.449
4 - accuracy: 0.7877
Epoch 4/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.443
4 - accuracy: 0.7877
Epoch 5/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.439
7 - accuracy: 0.7877
Epoch 6/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.437
0 - accuracy: 0.7877
Epoch 7/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.434
6 - accuracy: 0.7877
Epoch 8/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.432
2 - accuracy: 0.8017
Epoch 9/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.430
5 - accuracy: 0.8163
Epoch 10/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.429
4 - accuracy: 0.8204
Epoch 11/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.428
2 - accuracy: 0.8191
Epoch 12/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.427
4 - accuracy: 0.8216
Epoch 13/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.426
3 - accuracy: 0.8244
Epoch 14/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.425
5 - accuracy: 0.8250
Epoch 15/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.424
5 - accuracy: 0.8284
Epoch 16/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.424
1 - accuracy: 0.8279
Epoch 17/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.423
2 - accuracy: 0.8277
Epoch 18/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.422
5 - accuracy: 0.8297
Epoch 19/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.421
8 - accuracy: 0.8300
Epoch 20/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.421
4 - accuracy: 0.8299
Epoch 21/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.420
```

```
9 - accuracy: 0.8295
Epoch 22/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.420
5 - accuracy: 0.8302
Epoch 23/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.419
8 - accuracy: 0.8307
Epoch 24/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.419
2 - accuracy: 0.8302
Epoch 25/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.418
7 - accuracy: 0.8315
Epoch 26/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.418
2 - accuracy: 0.8313
Epoch 27/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.417
8 - accuracy: 0.8305
Epoch 28/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.417
4 - accuracy: 0.8313
Epoch 29/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.417
2 - accuracy: 0.8315
Epoch 30/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.416
6 - accuracy: 0.8299
Epoch 31/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.416
3 - accuracy: 0.8305
Epoch 32/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.415
8 - accuracy: 0.8310
Epoch 33/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.415
7 - accuracy: 0.8300
Epoch 34/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.415
4 - accuracy: 0.8318
Epoch 35/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.415
0 - accuracy: 0.8310
Epoch 36/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.414
9 - accuracy: 0.8313
Epoch 37/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.414
3 - accuracy: 0.8322
Epoch 38/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.414
2 - accuracy: 0.8313
Epoch 39/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.414
5 - accuracy: 0.8310
Epoch 40/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.414
0 - accuracy: 0.8308
Epoch 41/100
6030/6030 [=====] - 1s 242us/sample - loss: 0.413
9 - accuracy: 0.8313
```

Epoch 42/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.413  
5 - accuracy: 0.8327

Epoch 43/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.413  
7 - accuracy: 0.8320

Epoch 44/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.413  
4 - accuracy: 0.8312

Epoch 45/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.413  
2 - accuracy: 0.8312

Epoch 46/100  
6030/6030 [=====] - 1s 204us/sample - loss: 0.413  
4 - accuracy: 0.8317

Epoch 47/100  
6030/6030 [=====] - 1s 179us/sample - loss: 0.413  
3 - accuracy: 0.8312

Epoch 48/100  
6030/6030 [=====] - 1s 179us/sample - loss: 0.413  
2 - accuracy: 0.8300

Epoch 49/100  
6030/6030 [=====] - 1s 182us/sample - loss: 0.413  
1 - accuracy: 0.8322

Epoch 50/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.413  
1 - accuracy: 0.8313

Epoch 51/100  
6030/6030 [=====] - 1s 229us/sample - loss: 0.413  
0 - accuracy: 0.8312

Epoch 52/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.412  
7 - accuracy: 0.8310

Epoch 53/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.412  
6 - accuracy: 0.8315

Epoch 54/100  
6030/6030 [=====] - 1s 179us/sample - loss: 0.412  
6 - accuracy: 0.8320

Epoch 55/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.412  
4 - accuracy: 0.8310

Epoch 56/100  
6030/6030 [=====] - 1s 185us/sample - loss: 0.412  
4 - accuracy: 0.8310

Epoch 57/100  
6030/6030 [=====] - 1s 187us/sample - loss: 0.412  
3 - accuracy: 0.8318

Epoch 58/100  
6030/6030 [=====] - 1s 175us/sample - loss: 0.412  
0 - accuracy: 0.8310

Epoch 59/100  
6030/6030 [=====] - 1s 173us/sample - loss: 0.412  
2 - accuracy: 0.8313

Epoch 60/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.412  
1 - accuracy: 0.8305

Epoch 61/100  
6030/6030 [=====] - 1s 182us/sample - loss: 0.412  
1 - accuracy: 0.8308

Epoch 62/100

```
6030/6030 [=====] - 1s 183us/sample - loss: 0.411
6 - accuracy: 0.8335
Epoch 63/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.412
0 - accuracy: 0.8313
Epoch 64/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.411
9 - accuracy: 0.8315
Epoch 65/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.411
5 - accuracy: 0.8322
Epoch 66/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.411
7 - accuracy: 0.8313
Epoch 67/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.411
4 - accuracy: 0.8303
Epoch 68/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.411
3 - accuracy: 0.8315
Epoch 69/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.411
3 - accuracy: 0.8308
Epoch 70/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.411
1 - accuracy: 0.8303
Epoch 71/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.411
2 - accuracy: 0.8310
Epoch 72/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.410
8 - accuracy: 0.8299
Epoch 73/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.411
1 - accuracy: 0.8323
Epoch 74/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.410
9 - accuracy: 0.8322
Epoch 75/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.410
7 - accuracy: 0.8318
Epoch 76/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.410
7 - accuracy: 0.8312
Epoch 77/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.410
8 - accuracy: 0.8313
Epoch 78/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.410
7 - accuracy: 0.8318
Epoch 79/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.410
8 - accuracy: 0.8322
Epoch 80/100
6030/6030 [=====] - 1s 220us/sample - loss: 0.410
6 - accuracy: 0.8327
Epoch 81/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.410
7 - accuracy: 0.8300
Epoch 82/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.410
```



```
5 - accuracy: 0.8317
Epoch 83/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.410
5 - accuracy: 0.8300
Epoch 84/100
6030/6030 [=====] - 2s 259us/sample - loss: 0.410
2 - accuracy: 0.8302
Epoch 85/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.410
6 - accuracy: 0.8315
Epoch 86/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.410
3 - accuracy: 0.8305
Epoch 87/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.410
3 - accuracy: 0.8299
Epoch 88/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.410
4 - accuracy: 0.8312
Epoch 89/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.410
3 - accuracy: 0.8322
Epoch 90/100
6030/6030 [=====] - 1s 248us/sample - loss: 0.410
2 - accuracy: 0.8310
Epoch 91/100
6030/6030 [=====] - 1s 225us/sample - loss: 0.410
1 - accuracy: 0.8322
Epoch 92/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.410
1 - accuracy: 0.8318
Epoch 93/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.410
1 - accuracy: 0.8305
Epoch 94/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.410
0 - accuracy: 0.8302
Epoch 95/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.409
8 - accuracy: 0.8295
Epoch 96/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.409
6 - accuracy: 0.8315
Epoch 97/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.410
0 - accuracy: 0.8302
Epoch 98/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.409
7 - accuracy: 0.8312
Epoch 99/100
6030/6030 [=====] - 1s 167us/sample - loss: 0.409
7 - accuracy: 0.8310
Epoch 100/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.409
5 - accuracy: 0.8312
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 290us/sample - loss: 0.636
9 - accuracy: 0.7912
Epoch 2/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.494
```

```
9 - accuracy: 0.7912
Epoch 3/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.451
5 - accuracy: 0.7912
Epoch 4/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.444
4 - accuracy: 0.7912
Epoch 5/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.440
4 - accuracy: 0.7912
Epoch 6/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.438
1 - accuracy: 0.7912
Epoch 7/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.436
4 - accuracy: 0.7912
Epoch 8/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.435
4 - accuracy: 0.7912
Epoch 9/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.434
2 - accuracy: 0.7912
Epoch 10/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.432
9 - accuracy: 0.7912
Epoch 11/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.430
7 - accuracy: 0.7937
Epoch 12/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.428
3 - accuracy: 0.8186
Epoch 13/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.425
7 - accuracy: 0.8207
Epoch 14/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.423
4 - accuracy: 0.8224
Epoch 15/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.421
2 - accuracy: 0.8247
Epoch 16/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.419
1 - accuracy: 0.8272
Epoch 17/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.417
3 - accuracy: 0.8279
Epoch 18/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.416
0 - accuracy: 0.8285
Epoch 19/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.414
6 - accuracy: 0.8282
Epoch 20/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.413
6 - accuracy: 0.8290
Epoch 21/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.412
3 - accuracy: 0.8299
Epoch 22/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.411
7 - accuracy: 0.8282
```

Epoch 23/100  
6030/6030 [=====] - 1s 188us/sample - loss: 0.410  
9 - accuracy: 0.8290

Epoch 24/100  
6030/6030 [=====] - 1s 185us/sample - loss: 0.410  
2 - accuracy: 0.8290

Epoch 25/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.409  
5 - accuracy: 0.8287

Epoch 26/100  
6030/6030 [=====] - 1s 192us/sample - loss: 0.408  
9 - accuracy: 0.8300

Epoch 27/100  
6030/6030 [=====] - 1s 178us/sample - loss: 0.408  
4 - accuracy: 0.8294

Epoch 28/100  
6030/6030 [=====] - 1s 178us/sample - loss: 0.408  
0 - accuracy: 0.8292

Epoch 29/100  
6030/6030 [=====] - 1s 185us/sample - loss: 0.407  
3 - accuracy: 0.8280

Epoch 30/100  
6030/6030 [=====] - 1s 192us/sample - loss: 0.406  
6 - accuracy: 0.8294

Epoch 31/100  
6030/6030 [=====] - 1s 182us/sample - loss: 0.406  
3 - accuracy: 0.8279

Epoch 32/100  
6030/6030 [=====] - 1s 184us/sample - loss: 0.406  
0 - accuracy: 0.8289

Epoch 33/100  
6030/6030 [=====] - 1s 220us/sample - loss: 0.405  
6 - accuracy: 0.8290

Epoch 34/100  
6030/6030 [=====] - 1s 233us/sample - loss: 0.405  
2 - accuracy: 0.8292

Epoch 35/100  
6030/6030 [=====] - 1s 182us/sample - loss: 0.404  
8 - accuracy: 0.8280

Epoch 36/100  
6030/6030 [=====] - 1s 180us/sample - loss: 0.404  
7 - accuracy: 0.8299

Epoch 37/100  
6030/6030 [=====] - 1s 177us/sample - loss: 0.404  
0 - accuracy: 0.8295

Epoch 38/100  
6030/6030 [=====] - 1s 173us/sample - loss: 0.404  
0 - accuracy: 0.8275

Epoch 39/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.403  
9 - accuracy: 0.8280

Epoch 40/100  
6030/6030 [=====] - 1s 201us/sample - loss: 0.403  
4 - accuracy: 0.8292

Epoch 41/100  
6030/6030 [=====] - 1s 185us/sample - loss: 0.403  
5 - accuracy: 0.8303

Epoch 42/100  
6030/6030 [=====] - 2s 257us/sample - loss: 0.403  
2 - accuracy: 0.8294

Epoch 43/100

```
6030/6030 [=====] - 1s 180us/sample - loss: 0.403
0 - accuracy: 0.8285
Epoch 44/100
6030/6030 [=====] - 1s 179us/sample - loss: 0.402
7 - accuracy: 0.8300
Epoch 45/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.402
6 - accuracy: 0.8292
Epoch 46/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.402
3 - accuracy: 0.8300
Epoch 47/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.402
3 - accuracy: 0.8292
Epoch 48/100
6030/6030 [=====] - 2s 277us/sample - loss: 0.402
3 - accuracy: 0.8287
Epoch 49/100
6030/6030 [=====] - 1s 242us/sample - loss: 0.401
8 - accuracy: 0.8297
Epoch 50/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.402
0 - accuracy: 0.8305
Epoch 51/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.401
7 - accuracy: 0.8305
Epoch 52/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.401
3 - accuracy: 0.8312
Epoch 53/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.401
5 - accuracy: 0.8313
Epoch 54/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.401
6 - accuracy: 0.8299
Epoch 55/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.401
0 - accuracy: 0.8325
Epoch 56/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.401
1 - accuracy: 0.8305
Epoch 57/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.401
1 - accuracy: 0.8307
Epoch 58/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.401
1 - accuracy: 0.8307
Epoch 59/100
6030/6030 [=====] - 2s 275us/sample - loss: 0.400
6 - accuracy: 0.8318
Epoch 60/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.400
5 - accuracy: 0.8310
Epoch 61/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.400
6 - accuracy: 0.8308
Epoch 62/100
6030/6030 [=====] - 1s 236us/sample - loss: 0.400
6 - accuracy: 0.8318
Epoch 63/100
6030/6030 [=====] - 1s 234us/sample - loss: 0.400
```

```
3 - accuracy: 0.8308
Epoch 64/100
6030/6030 [=====] - 1s 247us/sample - loss: 0.400
4 - accuracy: 0.8308 - los
Epoch 65/100
6030/6030 [=====] - 1s 243us/sample - loss: 0.400
2 - accuracy: 0.8310
Epoch 66/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.400
3 - accuracy: 0.8323
Epoch 67/100
6030/6030 [=====] - 1s 240us/sample - loss: 0.400
3 - accuracy: 0.8320
Epoch 68/100
6030/6030 [=====] - 1s 229us/sample - loss: 0.400
2 - accuracy: 0.8317
Epoch 69/100
6030/6030 [=====] - 1s 245us/sample - loss: 0.400
0 - accuracy: 0.8307
Epoch 70/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.400
0 - accuracy: 0.8313
Epoch 71/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.400
0 - accuracy: 0.8315
Epoch 72/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.399
7 - accuracy: 0.8310
Epoch 73/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.399
7 - accuracy: 0.8313
Epoch 74/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
6 - accuracy: 0.8307
Epoch 75/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.399
6 - accuracy: 0.8310
Epoch 76/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.399
4 - accuracy: 0.8325
Epoch 77/100
6030/6030 [=====] - 1s 174us/sample - loss: 0.399
3 - accuracy: 0.8322
Epoch 78/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.399
3 - accuracy: 0.8320
Epoch 79/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.399
4 - accuracy: 0.8325
Epoch 80/100
6030/6030 [=====] - 1s 184us/sample - loss: 0.399
1 - accuracy: 0.8322
Epoch 81/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.399
2 - accuracy: 0.8317
Epoch 82/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.399
1 - accuracy: 0.8315
Epoch 83/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.399
0 - accuracy: 0.8313
```

```
Epoch 84/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.399
0 - accuracy: 0.8340
Epoch 85/100
6030/6030 [=====] - 1s 222us/sample - loss: 0.398
8 - accuracy: 0.8333
Epoch 86/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.398
9 - accuracy: 0.8335
Epoch 87/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.398
7 - accuracy: 0.8323
Epoch 88/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.398
7 - accuracy: 0.8330
Epoch 89/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.398
4 - accuracy: 0.8317
Epoch 90/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.398
4 - accuracy: 0.8345
Epoch 91/100
6030/6030 [=====] - 1s 234us/sample - loss: 0.398
3 - accuracy: 0.8342
Epoch 92/100
6030/6030 [=====] - 2s 258us/sample - loss: 0.398
3 - accuracy: 0.8333
Epoch 93/100
6030/6030 [=====] - 2s 287us/sample - loss: 0.398
2 - accuracy: 0.8353
Epoch 94/100
6030/6030 [=====] - 2s 258us/sample - loss: 0.398
4 - accuracy: 0.8323
Epoch 95/100
6030/6030 [=====] - 2s 295us/sample - loss: 0.398
2 - accuracy: 0.8340
Epoch 96/100
6030/6030 [=====] - 2s 348us/sample - loss: 0.398
2 - accuracy: 0.8333
Epoch 97/100
6030/6030 [=====] - 2s 338us/sample - loss: 0.397
9 - accuracy: 0.8335
Epoch 98/100
6030/6030 [=====] - 2s 335us/sample - loss: 0.397
9 - accuracy: 0.8328 - loss: 0.4039 - accura
Epoch 99/100
6030/6030 [=====] - 2s 334us/sample - loss: 0.398
1 - accuracy: 0.8332
Epoch 100/100
6030/6030 [=====] - 2s 253us/sample - loss: 0.397
9 - accuracy: 0.8337
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 280us/sample - loss: 0.624
4 - accuracy: 0.7909
Epoch 2/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.476
1 - accuracy: 0.7934
Epoch 3/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.441
8 - accuracy: 0.7934
```

Epoch 4/100  
6030/6030 [=====] - 1s 193us/sample - loss: 0.435  
2 - accuracy: 0.7934

Epoch 5/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.431  
3 - accuracy: 0.7934

Epoch 6/100  
6030/6030 [=====] - 1s 178us/sample - loss: 0.428  
2 - accuracy: 0.7934

Epoch 7/100  
6030/6030 [=====] - 1s 174us/sample - loss: 0.425  
3 - accuracy: 0.7934

Epoch 8/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.422  
9 - accuracy: 0.8113

Epoch 9/100  
6030/6030 [=====] - 1s 179us/sample - loss: 0.420  
7 - accuracy: 0.8222

Epoch 10/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.418  
6 - accuracy: 0.8250

Epoch 11/100  
6030/6030 [=====] - 1s 220us/sample - loss: 0.416  
6 - accuracy: 0.8282

Epoch 12/100  
6030/6030 [=====] - 1s 177us/sample - loss: 0.414  
6 - accuracy: 0.8280

Epoch 13/100  
6030/6030 [=====] - 1s 204us/sample - loss: 0.413  
3 - accuracy: 0.8297

Epoch 14/100  
6030/6030 [=====] - 1s 235us/sample - loss: 0.411  
8 - accuracy: 0.8292

Epoch 15/100  
6030/6030 [=====] - 1s 240us/sample - loss: 0.410  
3 - accuracy: 0.8317

Epoch 16/100  
6030/6030 [=====] - 1s 237us/sample - loss: 0.408  
7 - accuracy: 0.8320

Epoch 17/100  
6030/6030 [=====] - 2s 280us/sample - loss: 0.407  
8 - accuracy: 0.8312 - loss: 0.4056 - accuracy

Epoch 18/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.406  
9 - accuracy: 0.8310

Epoch 19/100  
6030/6030 [=====] - 1s 228us/sample - loss: 0.405  
6 - accuracy: 0.8335

Epoch 20/100  
6030/6030 [=====] - 1s 235us/sample - loss: 0.405  
2 - accuracy: 0.8317

Epoch 21/100  
6030/6030 [=====] - 2s 259us/sample - loss: 0.404  
3 - accuracy: 0.8335

Epoch 22/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.403  
7 - accuracy: 0.8340

Epoch 23/100  
6030/6030 [=====] - 1s 170us/sample - loss: 0.403  
2 - accuracy: 0.8337

Epoch 24/100

```
6030/6030 [=====] - 1s 178us/sample - loss: 0.402
7 - accuracy: 0.8312
Epoch 25/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.402
1 - accuracy: 0.8318
Epoch 26/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.401
8 - accuracy: 0.8317
Epoch 27/100
6030/6030 [=====] - 1s 162us/sample - loss: 0.401
4 - accuracy: 0.8340
Epoch 28/100
6030/6030 [=====] - 1s 161us/sample - loss: 0.401
1 - accuracy: 0.8318
Epoch 29/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.400
8 - accuracy: 0.8343
Epoch 30/100
6030/6030 [=====] - 1s 233us/sample - loss: 0.400
4 - accuracy: 0.8338
Epoch 31/100
6030/6030 [=====] - 1s 249us/sample - loss: 0.400
1 - accuracy: 0.8322
Epoch 32/100
6030/6030 [=====] - 2s 273us/sample - loss: 0.400
1 - accuracy: 0.8328
Epoch 33/100
6030/6030 [=====] - 2s 260us/sample - loss: 0.399
8 - accuracy: 0.8325
Epoch 34/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.399
7 - accuracy: 0.8325
Epoch 35/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.399
3 - accuracy: 0.8323
Epoch 36/100
6030/6030 [=====] - 2s 254us/sample - loss: 0.399
1 - accuracy: 0.8338
Epoch 37/100
6030/6030 [=====] - ETA: 0s - loss: 0.3992 - accu
racy: 0.83 - 1s 229us/sample - loss: 0.3988 - accuracy: 0.8342
Epoch 38/100
6030/6030 [=====] - 1s 241us/sample - loss: 0.398
9 - accuracy: 0.8338
Epoch 39/100
6030/6030 [=====] - 2s 269us/sample - loss: 0.398
4 - accuracy: 0.8337
Epoch 40/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.398
6 - accuracy: 0.8348
Epoch 41/100
6030/6030 [=====] - 1s 229us/sample - loss: 0.398
1 - accuracy: 0.8337
Epoch 42/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.398
1 - accuracy: 0.8355
Epoch 43/100
6030/6030 [=====] - 2s 260us/sample - loss: 0.397
7 - accuracy: 0.8362
Epoch 44/100
6030/6030 [=====] - 2s 281us/sample - loss: 0.397
```



```
3 - accuracy: 0.8327
Epoch 45/100
6030/6030 [=====] - 2s 334us/sample - loss: 0.396
8 - accuracy: 0.8357
Epoch 46/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.397
4 - accuracy: 0.8330
Epoch 47/100
6030/6030 [=====] - 2s 290us/sample - loss: 0.397
1 - accuracy: 0.8338
Epoch 48/100
6030/6030 [=====] - 1s 215us/sample - loss: 0.396
8 - accuracy: 0.8362
Epoch 49/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.396
9 - accuracy: 0.8343
Epoch 50/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.396
9 - accuracy: 0.8355
Epoch 51/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.396
6 - accuracy: 0.8367
Epoch 52/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.396
5 - accuracy: 0.8345
Epoch 53/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.396
5 - accuracy: 0.8347
Epoch 54/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.396
0 - accuracy: 0.8363
Epoch 55/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.395
8 - accuracy: 0.8347
Epoch 56/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.395
9 - accuracy: 0.8367
Epoch 57/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.395
9 - accuracy: 0.8358
Epoch 58/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.395
8 - accuracy: 0.8343
Epoch 59/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.395
8 - accuracy: 0.8340
Epoch 60/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.395
7 - accuracy: 0.8362
Epoch 61/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.395
7 - accuracy: 0.8353
Epoch 62/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.395
6 - accuracy: 0.8370 - loss: 0.3932 - accuracy: 0.
Epoch 63/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.395
3 - accuracy: 0.8373
Epoch 64/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.395
1 - accuracy: 0.8353
```

```
Epoch 65/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.395
2 - accuracy: 0.8358
Epoch 66/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.395
0 - accuracy: 0.8373
Epoch 67/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.395
0 - accuracy: 0.8365
Epoch 68/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.394
7 - accuracy: 0.8357
Epoch 69/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.395
1 - accuracy: 0.8381
Epoch 70/100
6030/6030 [=====] - 1s 226us/sample - loss: 0.394
9 - accuracy: 0.8353
Epoch 71/100
6030/6030 [=====] - 1s 220us/sample - loss: 0.395
0 - accuracy: 0.8381
Epoch 72/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.394
6 - accuracy: 0.8358
Epoch 73/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.394
9 - accuracy: 0.8368
Epoch 74/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.394
8 - accuracy: 0.8357
Epoch 75/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.394
1 - accuracy: 0.8355
Epoch 76/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.394
5 - accuracy: 0.8362
Epoch 77/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.394
4 - accuracy: 0.8348
Epoch 78/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.394
2 - accuracy: 0.8345
Epoch 79/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.394
4 - accuracy: 0.8357
Epoch 80/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.394
3 - accuracy: 0.8362
Epoch 81/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.394
0 - accuracy: 0.8370
Epoch 82/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.394
2 - accuracy: 0.8355
Epoch 83/100
6030/6030 [=====] - 1s 176us/sample - loss: 0.394
1 - accuracy: 0.8370
Epoch 84/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.394
0 - accuracy: 0.8360
Epoch 85/100
```

```
6030/6030 [=====] - 1s 185us/sample - loss: 0.393
4 - accuracy: 0.8371
Epoch 86/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.393
6 - accuracy: 0.8381
Epoch 87/100
6030/6030 [=====] - 1s 220us/sample - loss: 0.393
5 - accuracy: 0.8371
Epoch 88/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.393
3 - accuracy: 0.8367
Epoch 89/100
6030/6030 [=====] - 1s 226us/sample - loss: 0.393
3 - accuracy: 0.8376
Epoch 90/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.393
5 - accuracy: 0.8350
Epoch 91/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.393
1 - accuracy: 0.8370
Epoch 92/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.393
2 - accuracy: 0.8370
Epoch 93/100
6030/6030 [=====] - 1s 186us/sample - loss: 0.393
2 - accuracy: 0.8363
Epoch 94/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.392
8 - accuracy: 0.8371
Epoch 95/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.392
8 - accuracy: 0.8388
Epoch 96/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.393
2 - accuracy: 0.8371
Epoch 97/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.392
9 - accuracy: 0.8381
Epoch 98/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.392
3 - accuracy: 0.8371
Epoch 99/100
6030/6030 [=====] - 1s 166us/sample - loss: 0.392
9 - accuracy: 0.8383
Epoch 100/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.392
8 - accuracy: 0.8368
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 285us/sample - loss: 0.630
6 - accuracy: 0.7904
Epoch 2/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.479
8 - accuracy: 0.7920
Epoch 3/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.446
0 - accuracy: 0.7920
Epoch 4/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.438
9 - accuracy: 0.7920
Epoch 5/100
```

```
6030/6030 [=====] - 1s 195us/sample - loss: 0.435
1 - accuracy: 0.7920
Epoch 6/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.432
4 - accuracy: 0.7920
Epoch 7/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.430
1 - accuracy: 0.7920
Epoch 8/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.427
8 - accuracy: 0.7920
Epoch 9/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.425
5 - accuracy: 0.7920
Epoch 10/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.423
8 - accuracy: 0.8081
Epoch 11/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.422
6 - accuracy: 0.8192
Epoch 12/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.421
4 - accuracy: 0.8204
Epoch 13/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.420
5 - accuracy: 0.8227
Epoch 14/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.419
6 - accuracy: 0.8240
Epoch 15/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.418
6 - accuracy: 0.8244
Epoch 16/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.417
9 - accuracy: 0.8259
Epoch 17/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.417
2 - accuracy: 0.8274
Epoch 18/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.416
5 - accuracy: 0.8284
Epoch 19/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.415
8 - accuracy: 0.8289
Epoch 20/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.415
3 - accuracy: 0.8297
Epoch 21/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.414
7 - accuracy: 0.8303
Epoch 22/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.414
2 - accuracy: 0.8305
Epoch 23/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.413
4 - accuracy: 0.8297
Epoch 24/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.412
9 - accuracy: 0.8294
Epoch 25/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.412
```

```
8 - accuracy: 0.8292
Epoch 26/100
6030/6030 [=====] - 1s 232us/sample - loss: 0.412
2 - accuracy: 0.8290 - loss: 0.4
Epoch 27/100
6030/6030 [=====] - 2s 257us/sample - loss: 0.411
9 - accuracy: 0.8294
Epoch 28/100
6030/6030 [=====] - 1s 241us/sample - loss: 0.411
7 - accuracy: 0.8315
Epoch 29/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.411
2 - accuracy: 0.8297
Epoch 30/100
6030/6030 [=====] - 1s 226us/sample - loss: 0.411
0 - accuracy: 0.8307
Epoch 31/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.410
6 - accuracy: 0.8294
Epoch 32/100
6030/6030 [=====] - 1s 244us/sample - loss: 0.410
3 - accuracy: 0.8297
Epoch 33/100
6030/6030 [=====] - 1s 222us/sample - loss: 0.410
0 - accuracy: 0.8297
Epoch 34/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.409
8 - accuracy: 0.8312
Epoch 35/100
6030/6030 [=====] - 2s 250us/sample - loss: 0.409
4 - accuracy: 0.8302
Epoch 36/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.409
4 - accuracy: 0.8307
Epoch 37/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.409
3 - accuracy: 0.8289
Epoch 38/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.409
0 - accuracy: 0.8294
Epoch 39/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.408
8 - accuracy: 0.8307
Epoch 40/100
6030/6030 [=====] - 1s 244us/sample - loss: 0.408
6 - accuracy: 0.8300
Epoch 41/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.408
5 - accuracy: 0.8294
Epoch 42/100
6030/6030 [=====] - 1s 245us/sample - loss: 0.408
4 - accuracy: 0.8294 - loss: 0
Epoch 43/100
6030/6030 [=====] - 1s 220us/sample - loss: 0.407
9 - accuracy: 0.8282
Epoch 44/100
6030/6030 [=====] - 2s 310us/sample - loss: 0.408
0 - accuracy: 0.8290
Epoch 45/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.407
8 - accuracy: 0.8307
```

Epoch 46/100  
6030/6030 [=====] - 1s 198us/sample - loss: 0.407  
9 - accuracy: 0.8307

Epoch 47/100  
6030/6030 [=====] - 1s 209us/sample - loss: 0.407  
6 - accuracy: 0.8303

Epoch 48/100  
6030/6030 [=====] - 2s 258us/sample - loss: 0.407  
3 - accuracy: 0.8295

Epoch 49/100  
6030/6030 [=====] - 1s 243us/sample - loss: 0.407  
3 - accuracy: 0.8295

Epoch 50/100  
6030/6030 [=====] - 1s 203us/sample - loss: 0.407  
3 - accuracy: 0.8308

Epoch 51/100  
6030/6030 [=====] - 1s 189us/sample - loss: 0.407  
1 - accuracy: 0.8297

Epoch 52/100  
6030/6030 [=====] - 1s 216us/sample - loss: 0.407  
2 - accuracy: 0.8299

Epoch 53/100  
6030/6030 [=====] - 1s 238us/sample - loss: 0.406  
7 - accuracy: 0.8300

Epoch 54/100  
6030/6030 [=====] - 1s 238us/sample - loss: 0.406  
8 - accuracy: 0.8302

Epoch 55/100  
6030/6030 [=====] - 1s 231us/sample - loss: 0.406  
4 - accuracy: 0.8300

Epoch 56/100  
6030/6030 [=====] - 1s 178us/sample - loss: 0.406  
4 - accuracy: 0.8307

Epoch 57/100  
6030/6030 [=====] - 2s 261us/sample - loss: 0.406  
1 - accuracy: 0.8303

Epoch 58/100  
6030/6030 [=====] - 1s 182us/sample - loss: 0.406  
0 - accuracy: 0.8302

Epoch 59/100  
6030/6030 [=====] - 1s 220us/sample - loss: 0.405  
6 - accuracy: 0.8289

Epoch 60/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.405  
4 - accuracy: 0.8303

Epoch 61/100  
6030/6030 [=====] - 1s 220us/sample - loss: 0.405  
3 - accuracy: 0.8303

Epoch 62/100  
6030/6030 [=====] - 1s 207us/sample - loss: 0.405  
1 - accuracy: 0.8300

Epoch 63/100  
6030/6030 [=====] - 1s 190us/sample - loss: 0.404  
8 - accuracy: 0.8317

Epoch 64/100  
6030/6030 [=====] - 1s 208us/sample - loss: 0.404  
7 - accuracy: 0.8308

Epoch 65/100  
6030/6030 [=====] - 1s 233us/sample - loss: 0.404  
4 - accuracy: 0.8303

Epoch 66/100

```
6030/6030 [=====] - 1s 198us/sample - loss: 0.404
1 - accuracy: 0.8320
Epoch 67/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.404
0 - accuracy: 0.8327
Epoch 68/100
6030/6030 [=====] - 1s 181us/sample - loss: 0.403
7 - accuracy: 0.8317
Epoch 69/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.403
6 - accuracy: 0.8312
Epoch 70/100
6030/6030 [=====] - 1s 216us/sample - loss: 0.403
4 - accuracy: 0.8325
Epoch 71/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.403
1 - accuracy: 0.8313
Epoch 72/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.402
9 - accuracy: 0.8312
Epoch 73/100
6030/6030 [=====] - 1s 218us/sample - loss: 0.402
4 - accuracy: 0.8313
Epoch 74/100
6030/6030 [=====] - 1s 218us/sample - loss: 0.402
0 - accuracy: 0.8315
Epoch 75/100
6030/6030 [=====] - 1s 236us/sample - loss: 0.402
6 - accuracy: 0.8313
Epoch 76/100
6030/6030 [=====] - 1s 229us/sample - loss: 0.402
2 - accuracy: 0.8318
Epoch 77/100
6030/6030 [=====] - 1s 220us/sample - loss: 0.401
5 - accuracy: 0.8318
Epoch 78/100
6030/6030 [=====] - 1s 232us/sample - loss: 0.401
7 - accuracy: 0.8320
Epoch 79/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.401
3 - accuracy: 0.8322
Epoch 80/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.401
5 - accuracy: 0.8325
Epoch 81/100
6030/6030 [=====] - 1s 224us/sample - loss: 0.400
7 - accuracy: 0.8335
Epoch 82/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.401
3 - accuracy: 0.8332
Epoch 83/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.400
7 - accuracy: 0.8318
Epoch 84/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.400
6 - accuracy: 0.8320
Epoch 85/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.400
5 - accuracy: 0.8328
Epoch 86/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.400
```

```
1 - accuracy: 0.8330
Epoch 87/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.399
9 - accuracy: 0.8328
Epoch 88/100
6030/6030 [=====] - 1s 221us/sample - loss: 0.400
1 - accuracy: 0.8327
Epoch 89/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.399
7 - accuracy: 0.8330
Epoch 90/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.399
7 - accuracy: 0.8335
Epoch 91/100
6030/6030 [=====] - 1s 216us/sample - loss: 0.399
6 - accuracy: 0.8328
Epoch 92/100
6030/6030 [=====] - 1s 235us/sample - loss: 0.399
5 - accuracy: 0.8345
Epoch 93/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.399
4 - accuracy: 0.8327
Epoch 94/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.399
2 - accuracy: 0.8312
Epoch 95/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.399
3 - accuracy: 0.8320
Epoch 96/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.399
1 - accuracy: 0.8323
Epoch 97/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.399
0 - accuracy: 0.8328
Epoch 98/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.399
0 - accuracy: 0.8318
Epoch 99/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.398
7 - accuracy: 0.8330
Epoch 100/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.398
3 - accuracy: 0.8328
Train on 6030 samples
Epoch 1/100
6030/6030 [=====] - 2s 321us/sample - loss: 0.617
2 - accuracy: 0.7892
Epoch 2/100
6030/6030 [=====] - 1s 222us/sample - loss: 0.469
2 - accuracy: 0.7907
Epoch 3/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.447
0 - accuracy: 0.7907
Epoch 4/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.440
3 - accuracy: 0.7907
Epoch 5/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.436
9 - accuracy: 0.7907
Epoch 6/100
6030/6030 [=====] - 1s 232us/sample - loss: 0.434
```



```
4 - accuracy: 0.7907
Epoch 7/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.432
7 - accuracy: 0.7907
Epoch 8/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.429
8 - accuracy: 0.7998
Epoch 9/100
6030/6030 [=====] - 1s 202us/sample - loss: 0.427
3 - accuracy: 0.8159
Epoch 10/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.424
5 - accuracy: 0.8221
Epoch 11/100
6030/6030 [=====] - 1s 208us/sample - loss: 0.422
2 - accuracy: 0.8252
Epoch 12/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.420
2 - accuracy: 0.8295
Epoch 13/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.418
5 - accuracy: 0.8308
Epoch 14/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.416
9 - accuracy: 0.8312
Epoch 15/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.415
2 - accuracy: 0.8328
Epoch 16/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.414
1 - accuracy: 0.8305
Epoch 17/100
6030/6030 [=====] - 1s 223us/sample - loss: 0.412
8 - accuracy: 0.8310
Epoch 18/100
6030/6030 [=====] - 1s 217us/sample - loss: 0.412
0 - accuracy: 0.8287
Epoch 19/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.411
2 - accuracy: 0.8300
Epoch 20/100
6030/6030 [=====] - 1s 204us/sample - loss: 0.410
3 - accuracy: 0.8297
Epoch 21/100
6030/6030 [=====] - 2s 258us/sample - loss: 0.409
4 - accuracy: 0.8318
Epoch 22/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.408
8 - accuracy: 0.8295
Epoch 23/100
6030/6030 [=====] - 1s 197us/sample - loss: 0.408
3 - accuracy: 0.8308
Epoch 24/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.407
4 - accuracy: 0.8299
Epoch 25/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.406
9 - accuracy: 0.8307
Epoch 26/100
6030/6030 [=====] - 2s 251us/sample - loss: 0.406
4 - accuracy: 0.8323
```

Epoch 27/100  
6030/6030 [=====] - 1s 225us/sample - loss: 0.406  
1 - accuracy: 0.8302

Epoch 28/100  
6030/6030 [=====] - 1s 223us/sample - loss: 0.405  
8 - accuracy: 0.8305

Epoch 29/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.405  
3 - accuracy: 0.8315

Epoch 30/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.405  
2 - accuracy: 0.8332

Epoch 31/100  
6030/6030 [=====] - 1s 239us/sample - loss: 0.404  
7 - accuracy: 0.8313

Epoch 32/100  
6030/6030 [=====] - 1s 198us/sample - loss: 0.404  
5 - accuracy: 0.8313

Epoch 33/100  
6030/6030 [=====] - 1s 195us/sample - loss: 0.404  
3 - accuracy: 0.8308

Epoch 34/100  
6030/6030 [=====] - 1s 201us/sample - loss: 0.403  
9 - accuracy: 0.8317

Epoch 35/100  
6030/6030 [=====] - 1s 198us/sample - loss: 0.403  
7 - accuracy: 0.8335

Epoch 36/100  
6030/6030 [=====] - 1s 206us/sample - loss: 0.403  
9 - accuracy: 0.8312

Epoch 37/100  
6030/6030 [=====] - 2s 254us/sample - loss: 0.403  
3 - accuracy: 0.8318

Epoch 38/100  
6030/6030 [=====] - 2s 268us/sample - loss: 0.403  
1 - accuracy: 0.8317

Epoch 39/100  
6030/6030 [=====] - 2s 293us/sample - loss: 0.402  
5 - accuracy: 0.8332

Epoch 40/100  
6030/6030 [=====] - 2s 280us/sample - loss: 0.402  
7 - accuracy: 0.8337

Epoch 41/100  
6030/6030 [=====] - 2s 281us/sample - loss: 0.402  
6 - accuracy: 0.8317

Epoch 42/100  
6030/6030 [=====] - 2s 270us/sample - loss: 0.402  
3 - accuracy: 0.8322

Epoch 43/100  
6030/6030 [=====] - 2s 269us/sample - loss: 0.402  
3 - accuracy: 0.8323

Epoch 44/100  
6030/6030 [=====] - 1s 247us/sample - loss: 0.402  
2 - accuracy: 0.8330

Epoch 45/100  
6030/6030 [=====] - 2s 275us/sample - loss: 0.402  
0 - accuracy: 0.8333

Epoch 46/100  
6030/6030 [=====] - 1s 247us/sample - loss: 0.401  
7 - accuracy: 0.8332

Epoch 47/100

```
6030/6030 [=====] - 1s 199us/sample - loss: 0.401
5 - accuracy: 0.8335
Epoch 48/100
6030/6030 [=====] - 1s 198us/sample - loss: 0.401
2 - accuracy: 0.8328
Epoch 49/100
6030/6030 [=====] - 1s 228us/sample - loss: 0.401
2 - accuracy: 0.8353
Epoch 50/100
6030/6030 [=====] - 1s 203us/sample - loss: 0.401
0 - accuracy: 0.8337
Epoch 51/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.401
3 - accuracy: 0.8318
Epoch 52/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.400
9 - accuracy: 0.8335
Epoch 53/100
6030/6030 [=====] - 2s 257us/sample - loss: 0.400
8 - accuracy: 0.8328
Epoch 54/100
6030/6030 [=====] - 1s 212us/sample - loss: 0.400
8 - accuracy: 0.8332
Epoch 55/100
6030/6030 [=====] - 1s 206us/sample - loss: 0.400
5 - accuracy: 0.8328
Epoch 56/100
6030/6030 [=====] - 1s 207us/sample - loss: 0.400
3 - accuracy: 0.8332
Epoch 57/100
6030/6030 [=====] - 1s 182us/sample - loss: 0.400
1 - accuracy: 0.8338
Epoch 58/100
6030/6030 [=====] - 1s 213us/sample - loss: 0.400
2 - accuracy: 0.8318
Epoch 59/100
6030/6030 [=====] - 1s 201us/sample - loss: 0.400
3 - accuracy: 0.8340
Epoch 60/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.400
0 - accuracy: 0.8350
Epoch 61/100
6030/6030 [=====] - ETA: 0s - loss: 0.4003 - accuracy: 0.83 - 1s 199us/sample - loss: 0.4001 - accuracy: 0.8335
Epoch 62/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.399
8 - accuracy: 0.8332
Epoch 63/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.400
0 - accuracy: 0.8330
Epoch 64/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.399
5 - accuracy: 0.8352
Epoch 65/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.399
4 - accuracy: 0.8352
Epoch 66/100
6030/6030 [=====] - 1s 188us/sample - loss: 0.399
7 - accuracy: 0.8330
Epoch 67/100
6030/6030 [=====] - 1s 192us/sample - loss: 0.399
```

```
6 - accuracy: 0.8330
Epoch 68/100
6030/6030 [=====] - 1s 231us/sample - loss: 0.399
2 - accuracy: 0.8342
Epoch 69/100
6030/6030 [=====] - 1s 227us/sample - loss: 0.399
6 - accuracy: 0.8337
Epoch 70/100
6030/6030 [=====] - 1s 220us/sample - loss: 0.399
4 - accuracy: 0.8332
Epoch 71/100
6030/6030 [=====] - 2s 252us/sample - loss: 0.398
7 - accuracy: 0.8343
Epoch 72/100
6030/6030 [=====] - 1s 243us/sample - loss: 0.399
4 - accuracy: 0.8330
Epoch 73/100
6030/6030 [=====] - 1s 180us/sample - loss: 0.399
0 - accuracy: 0.8340
Epoch 74/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.399
1 - accuracy: 0.8342
Epoch 75/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.399
2 - accuracy: 0.8332
Epoch 76/100
6030/6030 [=====] - 1s 216us/sample - loss: 0.399
0 - accuracy: 0.8333
Epoch 77/100
6030/6030 [=====] - 1s 191us/sample - loss: 0.398
6 - accuracy: 0.8328
Epoch 78/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.398
5 - accuracy: 0.8342
Epoch 79/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.398
8 - accuracy: 0.8330
Epoch 80/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.398
8 - accuracy: 0.8327
Epoch 81/100
6030/6030 [=====] - 1s 190us/sample - loss: 0.398
5 - accuracy: 0.8333
Epoch 82/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.398
8 - accuracy: 0.8342
Epoch 83/100
6030/6030 [=====] - 1s 183us/sample - loss: 0.398
7 - accuracy: 0.8328
Epoch 84/100
6030/6030 [=====] - 1s 177us/sample - loss: 0.398
7 - accuracy: 0.8330
Epoch 85/100
6030/6030 [=====] - 1s 199us/sample - loss: 0.398
6 - accuracy: 0.8327
Epoch 86/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.398
6 - accuracy: 0.8335
Epoch 87/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.398
6 - accuracy: 0.8338
```

Epoch 88/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.398  
5 - accuracy: 0.8332

Epoch 89/100  
6030/6030 [=====] - 2s 259us/sample - loss: 0.398  
6 - accuracy: 0.8330

Epoch 90/100  
6030/6030 [=====] - 1s 197us/sample - loss: 0.398  
3 - accuracy: 0.8333

Epoch 91/100  
6030/6030 [=====] - 1s 199us/sample - loss: 0.398  
4 - accuracy: 0.8325

Epoch 92/100  
6030/6030 [=====] - 1s 223us/sample - loss: 0.398  
1 - accuracy: 0.8347

Epoch 93/100  
6030/6030 [=====] - 1s 190us/sample - loss: 0.398  
2 - accuracy: 0.8332

Epoch 94/100  
6030/6030 [=====] - 1s 190us/sample - loss: 0.398  
5 - accuracy: 0.8320

Epoch 95/100  
6030/6030 [=====] - 1s 183us/sample - loss: 0.398  
2 - accuracy: 0.8327

Epoch 96/100  
6030/6030 [=====] - 1s 184us/sample - loss: 0.398  
0 - accuracy: 0.8333

Epoch 97/100  
6030/6030 [=====] - 1s 190us/sample - loss: 0.398  
3 - accuracy: 0.8330

Epoch 98/100  
6030/6030 [=====] - 1s 185us/sample - loss: 0.397  
9 - accuracy: 0.8332

Epoch 99/100  
6030/6030 [=====] - 1s 201us/sample - loss: 0.397  
9 - accuracy: 0.8330

Epoch 100/100  
6030/6030 [=====] - 1s 194us/sample - loss: 0.397  
8 - accuracy: 0.8322

Train on 6030 samples

Epoch 1/100  
6030/6030 [=====] - 2s 279us/sample - loss: 0.608  
3 - accuracy: 0.7919

Epoch 2/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.461  
0 - accuracy: 0.7919

Epoch 3/100  
6030/6030 [=====] - 1s 185us/sample - loss: 0.442  
5 - accuracy: 0.7919

Epoch 4/100  
6030/6030 [=====] - 1s 193us/sample - loss: 0.436  
8 - accuracy: 0.7919

Epoch 5/100  
6030/6030 [=====] - 1s 192us/sample - loss: 0.433  
2 - accuracy: 0.7919

Epoch 6/100  
6030/6030 [=====] - 1s 186us/sample - loss: 0.430  
3 - accuracy: 0.7919

Epoch 7/100  
6030/6030 [=====] - 1s 196us/sample - loss: 0.427  
5 - accuracy: 0.7935

```
Epoch 8/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.425
8 - accuracy: 0.8161
Epoch 9/100
6030/6030 [=====] - 1s 196us/sample - loss: 0.424
3 - accuracy: 0.8189
Epoch 10/100
6030/6030 [=====] - 1s 194us/sample - loss: 0.423
4 - accuracy: 0.8197
Epoch 11/100
6030/6030 [=====] - 1s 235us/sample - loss: 0.422
2 - accuracy: 0.8222
Epoch 12/100
6030/6030 [=====] - 1s 210us/sample - loss: 0.421
4 - accuracy: 0.8226
Epoch 13/100
6030/6030 [=====] - 1s 240us/sample - loss: 0.420
3 - accuracy: 0.8260
Epoch 14/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.420
1 - accuracy: 0.8277
Epoch 15/100
6030/6030 [=====] - 1s 209us/sample - loss: 0.419
2 - accuracy: 0.8287
Epoch 16/100
6030/6030 [=====] - 1s 243us/sample - loss: 0.418
4 - accuracy: 0.8302
Epoch 17/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.418
0 - accuracy: 0.8305
Epoch 18/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.417
3 - accuracy: 0.8300
Epoch 19/100
6030/6030 [=====] - 1s 237us/sample - loss: 0.416
7 - accuracy: 0.8307
Epoch 20/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.416
2 - accuracy: 0.8294
Epoch 21/100
6030/6030 [=====] - 1s 219us/sample - loss: 0.415
5 - accuracy: 0.8313
Epoch 22/100
6030/6030 [=====] - 1s 211us/sample - loss: 0.415
0 - accuracy: 0.8310
Epoch 23/100
6030/6030 [=====] - 2s 269us/sample - loss: 0.415
1 - accuracy: 0.8313
Epoch 24/100
6030/6030 [=====] - 2s 300us/sample - loss: 0.414
3 - accuracy: 0.8308
Epoch 25/100
6030/6030 [=====] - 1s 233us/sample - loss: 0.414
5 - accuracy: 0.8317
Epoch 26/100
6030/6030 [=====] - 1s 233us/sample - loss: 0.413
9 - accuracy: 0.8322
Epoch 27/100
6030/6030 [=====] - 2s 255us/sample - loss: 0.413
8 - accuracy: 0.8323
Epoch 28/100
```

```
6030/6030 [=====] - 1s 238us/sample - loss: 0.413
4 - accuracy: 0.8315
Epoch 29/100
6030/6030 [=====] - 2s 328us/sample - loss: 0.413
3 - accuracy: 0.8313
Epoch 30/100
6030/6030 [=====] - 2s 320us/sample - loss: 0.412
9 - accuracy: 0.8318
Epoch 31/100
6030/6030 [=====] - 2s 289us/sample - loss: 0.412
6 - accuracy: 0.8322
Epoch 32/100
6030/6030 [=====] - 1s 246us/sample - loss: 0.412
7 - accuracy: 0.8323
Epoch 33/100
6030/6030 [=====] - 2s 269us/sample - loss: 0.412
1 - accuracy: 0.8313
Epoch 34/100
6030/6030 [=====] - 1s 234us/sample - loss: 0.412
2 - accuracy: 0.8312
Epoch 35/100
6030/6030 [=====] - 1s 238us/sample - loss: 0.411
6 - accuracy: 0.8340
Epoch 36/100
6030/6030 [=====] - 2s 254us/sample - loss: 0.411
6 - accuracy: 0.8315
Epoch 37/100
6030/6030 [=====] - 1s 221us/sample - loss: 0.411
4 - accuracy: 0.8330
Epoch 38/100
6030/6030 [=====] - 2s 276us/sample - loss: 0.411
1 - accuracy: 0.8330
Epoch 39/100
6030/6030 [=====] - 1s 242us/sample - loss: 0.411
1 - accuracy: 0.8322
Epoch 40/100
6030/6030 [=====] - 2s 249us/sample - loss: 0.410
7 - accuracy: 0.8325
Epoch 41/100
6030/6030 [=====] - 2s 250us/sample - loss: 0.410
5 - accuracy: 0.8310
Epoch 42/100
6030/6030 [=====] - 1s 224us/sample - loss: 0.410
8 - accuracy: 0.8325
Epoch 43/100
6030/6030 [=====] - 1s 236us/sample - loss: 0.410
5 - accuracy: 0.8313
Epoch 44/100
6030/6030 [=====] - 1s 228us/sample - loss: 0.410
4 - accuracy: 0.8327
Epoch 45/100
6030/6030 [=====] - 1s 246us/sample - loss: 0.410
2 - accuracy: 0.8313
Epoch 46/100
6030/6030 [=====] - 1s 244us/sample - loss: 0.410
0 - accuracy: 0.8317
Epoch 47/100
6030/6030 [=====] - 1s 246us/sample - loss: 0.410
0 - accuracy: 0.8325
Epoch 48/100
6030/6030 [=====] - 2s 287us/sample - loss: 0.409
```

```
6 - accuracy: 0.8302 - los
Epoch 49/100
6030/6030 [=====] - 2s 310us/sample - loss: 0.409
6 - accuracy: 0.8317
Epoch 50/100
6030/6030 [=====] - 2s 289us/sample - loss: 0.409
3 - accuracy: 0.8313
Epoch 51/100
6030/6030 [=====] - 1s 222us/sample - loss: 0.409
0 - accuracy: 0.8315
Epoch 52/100
6030/6030 [=====] - 2s 302us/sample - loss: 0.408
8 - accuracy: 0.8327
Epoch 53/100
6030/6030 [=====] - 1s 249us/sample - loss: 0.408
6 - accuracy: 0.8323
Epoch 54/100
6030/6030 [=====] - 1s 238us/sample - loss: 0.408
5 - accuracy: 0.8323
Epoch 55/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.408
8 - accuracy: 0.8335
Epoch 56/100
6030/6030 [=====] - 2s 255us/sample - loss: 0.408
3 - accuracy: 0.8330
Epoch 57/100
6030/6030 [=====] - 2s 268us/sample - loss: 0.408
5 - accuracy: 0.8312
Epoch 58/100
6030/6030 [=====] - 2s 251us/sample - loss: 0.408
2 - accuracy: 0.8327
Epoch 59/100
6030/6030 [=====] - 1s 214us/sample - loss: 0.408
0 - accuracy: 0.8305
Epoch 60/100
6030/6030 [=====] - 1s 200us/sample - loss: 0.408
1 - accuracy: 0.8317
Epoch 61/100
6030/6030 [=====] - 1s 193us/sample - loss: 0.408
0 - accuracy: 0.8322
Epoch 62/100
6030/6030 [=====] - 1s 195us/sample - loss: 0.408
0 - accuracy: 0.8308
Epoch 63/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.407
4 - accuracy: 0.8322
Epoch 64/100
6030/6030 [=====] - 1s 185us/sample - loss: 0.407
7 - accuracy: 0.8322
Epoch 65/100
6030/6030 [=====] - 1s 189us/sample - loss: 0.407
8 - accuracy: 0.8317
Epoch 66/100
6030/6030 [=====] - 1s 175us/sample - loss: 0.407
5 - accuracy: 0.8320
Epoch 67/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.407
5 - accuracy: 0.8307
Epoch 68/100
6030/6030 [=====] - 1s 187us/sample - loss: 0.407
5 - accuracy: 0.8310
```



Epoch 69/100  
6030/6030 [=====] - 1s 202us/sample - loss: 0.407  
2 - accuracy: 0.8332  
Epoch 70/100  
6030/6030 [=====] - 2s 266us/sample - loss: 0.407  
2 - accuracy: 0.8315  
Epoch 71/100  
6030/6030 [=====] - 2s 267us/sample - loss: 0.407  
1 - accuracy: 0.8320  
Epoch 72/100  
6030/6030 [=====] - 1s 238us/sample - loss: 0.406  
8 - accuracy: 0.8320  
Epoch 73/100  
6030/6030 [=====] - 2s 254us/sample - loss: 0.406  
9 - accuracy: 0.8322  
Epoch 74/100  
6030/6030 [=====] - 1s 232us/sample - loss: 0.406  
9 - accuracy: 0.8323 - loss: 0.4088 - accuracy  
Epoch 75/100  
6030/6030 [=====] - 1s 218us/sample - loss: 0.406  
6 - accuracy: 0.8323  
Epoch 76/100  
6030/6030 [=====] - ETA: 0s - loss: 0.4054 - accu  
racy: 0.83 - 1s 181us/sample - loss: 0.4064 - accuracy: 0.8328  
Epoch 77/100  
6030/6030 [=====] - 1s 238us/sample - loss: 0.406  
5 - accuracy: 0.8332  
Epoch 78/100  
6030/6030 [=====] - 1s 236us/sample - loss: 0.406  
2 - accuracy: 0.8318  
Epoch 79/100  
6030/6030 [=====] - 1s 232us/sample - loss: 0.406  
2 - accuracy: 0.8313  
Epoch 80/100  
6030/6030 [=====] - 1s 213us/sample - loss: 0.406  
5 - accuracy: 0.8320  
Epoch 81/100  
6030/6030 [=====] - 1s 239us/sample - loss: 0.406  
1 - accuracy: 0.8323  
Epoch 82/100  
6030/6030 [=====] - 1s 200us/sample - loss: 0.406  
0 - accuracy: 0.8315  
Epoch 83/100  
6030/6030 [=====] - 1s 200us/sample - loss: 0.406  
3 - accuracy: 0.8313  
Epoch 84/100  
6030/6030 [=====] - 1s 181us/sample - loss: 0.405  
8 - accuracy: 0.8330  
Epoch 85/100  
6030/6030 [=====] - 1s 216us/sample - loss: 0.405  
7 - accuracy: 0.8313  
Epoch 86/100  
6030/6030 [=====] - 1s 189us/sample - loss: 0.405  
5 - accuracy: 0.8307  
Epoch 87/100  
6030/6030 [=====] - 1s 213us/sample - loss: 0.405  
7 - accuracy: 0.8328  
Epoch 88/100  
6030/6030 [=====] - 1s 225us/sample - loss: 0.405  
7 - accuracy: 0.8325  
Epoch 89/100

```
6030/6030 [=====] - 1s 231us/sample - loss: 0.405
6 - accuracy: 0.8318
Epoch 90/100
6030/6030 [=====] - 1s 172us/sample - loss: 0.405
4 - accuracy: 0.8312
Epoch 91/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.405
1 - accuracy: 0.8325
Epoch 92/100
6030/6030 [=====] - 1s 173us/sample - loss: 0.405
4 - accuracy: 0.8327
Epoch 93/100
6030/6030 [=====] - 1s 171us/sample - loss: 0.405
4 - accuracy: 0.8335
Epoch 94/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.405
2 - accuracy: 0.8322
Epoch 95/100
6030/6030 [=====] - 1s 168us/sample - loss: 0.405
2 - accuracy: 0.8328
Epoch 96/100
6030/6030 [=====] - 1s 166us/sample - loss: 0.405
3 - accuracy: 0.8332
Epoch 97/100
6030/6030 [=====] - 1s 169us/sample - loss: 0.405
3 - accuracy: 0.8327
Epoch 98/100
6030/6030 [=====] - 1s 170us/sample - loss: 0.404
9 - accuracy: 0.8318
Epoch 99/100
6030/6030 [=====] - 1s 178us/sample - loss: 0.405
2 - accuracy: 0.8342
Epoch 100/100
6030/6030 [=====] - 1s 205us/sample - loss: 0.405
1 - accuracy: 0.8323
Train on 6030 samples
Epoch 1/500
6030/6030 [=====] - 2s 279us/sample - loss: 0.641
8 - accuracy: 0.7910
Epoch 2/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.464
5 - accuracy: 0.7954
Epoch 3/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.431
4 - accuracy: 0.7954
Epoch 4/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.425
5 - accuracy: 0.7954
Epoch 5/500
6030/6030 [=====] - 1s 162us/sample - loss: 0.421
3 - accuracy: 0.7954
Epoch 6/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.418
0 - accuracy: 0.7954
Epoch 7/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.414
4 - accuracy: 0.7954
Epoch 8/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.410
8 - accuracy: 0.7954
Epoch 9/500
```

```
6030/6030 [=====] - 1s 193us/sample - loss: 0.406
8 - accuracy: 0.7954
Epoch 10/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.402
9 - accuracy: 0.8012
Epoch 11/500
6030/6030 [=====] - 2s 278us/sample - loss: 0.398
8 - accuracy: 0.8265
Epoch 12/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.395
1 - accuracy: 0.8275
Epoch 13/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.391
5 - accuracy: 0.8287
Epoch 14/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.388
2 - accuracy: 0.8305
Epoch 15/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.385
4 - accuracy: 0.8307
Epoch 16/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.382
0 - accuracy: 0.8300
Epoch 17/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.379
6 - accuracy: 0.8371
Epoch 18/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.377
3 - accuracy: 0.8421
Epoch 19/500
6030/6030 [=====] - 2s 280us/sample - loss: 0.375
2 - accuracy: 0.8431
Epoch 20/500
6030/6030 [=====] - 2s 354us/sample - loss: 0.373
2 - accuracy: 0.8453
Epoch 21/500
6030/6030 [=====] - 2s 325us/sample - loss: 0.371
0 - accuracy: 0.8473
Epoch 22/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.369
8 - accuracy: 0.8456
Epoch 23/500
6030/6030 [=====] - 2s 287us/sample - loss: 0.367
6 - accuracy: 0.8479
Epoch 24/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.366
1 - accuracy: 0.8488
Epoch 25/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.365
3 - accuracy: 0.8491
Epoch 26/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.363
9 - accuracy: 0.8493
Epoch 27/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.362
6 - accuracy: 0.8512
Epoch 28/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.361
6 - accuracy: 0.8493
Epoch 29/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.361
```

```
2 - accuracy: 0.8504
Epoch 30/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.359
4 - accuracy: 0.8507
Epoch 31/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.358
4 - accuracy: 0.8502
Epoch 32/500
6030/6030 [=====] - 1s 162us/sample - loss: 0.358
2 - accuracy: 0.8544
Epoch 33/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.357
3 - accuracy: 0.8516
Epoch 34/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.356
7 - accuracy: 0.8519
Epoch 35/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.355
8 - accuracy: 0.8534
Epoch 36/500
6030/6030 [=====] - 2s 267us/sample - loss: 0.354
5 - accuracy: 0.8531
Epoch 37/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.355
1 - accuracy: 0.8506
Epoch 38/500
6030/6030 [=====] - 2s 266us/sample - loss: 0.353
9 - accuracy: 0.8531
Epoch 39/500
6030/6030 [=====] - 2s 291us/sample - loss: 0.353
9 - accuracy: 0.8517
Epoch 40/500
6030/6030 [=====] - 2s 360us/sample - loss: 0.353
1 - accuracy: 0.8517
Epoch 41/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.352
6 - accuracy: 0.8524
Epoch 42/500
6030/6030 [=====] - 2s 267us/sample - loss: 0.352
4 - accuracy: 0.8554
Epoch 43/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.352
1 - accuracy: 0.8527
Epoch 44/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.351
6 - accuracy: 0.8532
Epoch 45/500
6030/6030 [=====] - 2s 252us/sample - loss: 0.351
1 - accuracy: 0.8542
Epoch 46/500
6030/6030 [=====] - 2s 252us/sample - loss: 0.350
8 - accuracy: 0.8546
Epoch 47/500
6030/6030 [=====] - 1s 248us/sample - loss: 0.350
3 - accuracy: 0.8552
Epoch 48/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.350
3 - accuracy: 0.8546
Epoch 49/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.350
0 - accuracy: 0.8546
```

Epoch 50/500  
6030/6030 [=====] - 1s 240us/sample - loss: 0.350  
0 - accuracy: 0.8526

Epoch 51/500  
6030/6030 [=====] - 1s 224us/sample - loss: 0.349  
6 - accuracy: 0.8557

Epoch 52/500  
6030/6030 [=====] - 1s 238us/sample - loss: 0.349  
0 - accuracy: 0.8539

Epoch 53/500  
6030/6030 [=====] - 1s 214us/sample - loss: 0.348  
1 - accuracy: 0.8559

Epoch 54/500  
6030/6030 [=====] - 1s 201us/sample - loss: 0.348  
0 - accuracy: 0.8556

Epoch 55/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.348  
4 - accuracy: 0.8537

Epoch 56/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.348  
2 - accuracy: 0.8546

Epoch 57/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.348  
2 - accuracy: 0.8566

Epoch 58/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.347  
0 - accuracy: 0.8566

Epoch 59/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.347  
0 - accuracy: 0.8546

Epoch 60/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.347  
1 - accuracy: 0.8546

Epoch 61/500  
6030/6030 [=====] - 1s 219us/sample - loss: 0.346  
2 - accuracy: 0.8570

Epoch 62/500  
6030/6030 [=====] - 1s 212us/sample - loss: 0.346  
4 - accuracy: 0.8546

Epoch 63/500  
6030/6030 [=====] - 1s 219us/sample - loss: 0.346  
0 - accuracy: 0.8557

Epoch 64/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.345  
4 - accuracy: 0.8551

Epoch 65/500  
6030/6030 [=====] - 1s 225us/sample - loss: 0.345  
3 - accuracy: 0.8572

Epoch 66/500  
6030/6030 [=====] - 2s 268us/sample - loss: 0.345  
3 - accuracy: 0.8551

Epoch 67/500  
6030/6030 [=====] - 1s 240us/sample - loss: 0.345  
1 - accuracy: 0.8556

Epoch 68/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.344  
9 - accuracy: 0.8567

Epoch 69/500  
6030/6030 [=====] - 1s 165us/sample - loss: 0.344  
4 - accuracy: 0.8582

Epoch 70/500

```
6030/6030 [=====] - 1s 238us/sample - loss: 0.344
0 - accuracy: 0.8567
Epoch 71/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.344
5 - accuracy: 0.8567
Epoch 72/500
6030/6030 [=====] - 1s 229us/sample - loss: 0.343
5 - accuracy: 0.8574
Epoch 73/500
6030/6030 [=====] - 1s 233us/sample - loss: 0.343
8 - accuracy: 0.8590
Epoch 74/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.344
3 - accuracy: 0.8559
Epoch 75/500
6030/6030 [=====] - 1s 237us/sample - loss: 0.343
6 - accuracy: 0.8589
Epoch 76/500
6030/6030 [=====] - 2s 343us/sample - loss: 0.343
6 - accuracy: 0.8570
Epoch 77/500
6030/6030 [=====] - 2s 292us/sample - loss: 0.343
3 - accuracy: 0.8574
Epoch 78/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.343
1 - accuracy: 0.8579
Epoch 79/500
6030/6030 [=====] - 2s 361us/sample - loss: 0.343
1 - accuracy: 0.8575
Epoch 80/500
6030/6030 [=====] - 1s 247us/sample - loss: 0.343
5 - accuracy: 0.8594
Epoch 81/500
6030/6030 [=====] - 2s 260us/sample - loss: 0.342
4 - accuracy: 0.8549
Epoch 82/500
6030/6030 [=====] - 2s 278us/sample - loss: 0.343
1 - accuracy: 0.8574
Epoch 83/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.342
0 - accuracy: 0.8599
Epoch 84/500
6030/6030 [=====] - 2s 257us/sample - loss: 0.341
5 - accuracy: 0.8572
Epoch 85/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.342
4 - accuracy: 0.8575
Epoch 86/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.343
0 - accuracy: 0.8564
Epoch 87/500
6030/6030 [=====] - 2s 261us/sample - loss: 0.341
4 - accuracy: 0.8590
Epoch 88/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.342
0 - accuracy: 0.8585
Epoch 89/500
6030/6030 [=====] - 1s 162us/sample - loss: 0.341
3 - accuracy: 0.8570
Epoch 90/500
6030/6030 [=====] - 1s 161us/sample - loss: 0.341
```

```
6 - accuracy: 0.8572
Epoch 91/500
6030/6030 [=====] - 1s 167us/sample - loss: 0.341
4 - accuracy: 0.8599
Epoch 92/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.341
5 - accuracy: 0.8600
Epoch 93/500
6030/6030 [=====] - 2s 281us/sample - loss: 0.341
0 - accuracy: 0.8587
Epoch 94/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.341
2 - accuracy: 0.8569
Epoch 95/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.340
3 - accuracy: 0.8614
Epoch 96/500
6030/6030 [=====] - 1s 159us/sample - loss: 0.342
0 - accuracy: 0.8572
Epoch 97/500
6030/6030 [=====] - 1s 147us/sample - loss: 0.340
7 - accuracy: 0.8574
Epoch 98/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.340
7 - accuracy: 0.8584
Epoch 99/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.340
1 - accuracy: 0.8574
Epoch 100/500
6030/6030 [=====] - 1s 147us/sample - loss: 0.340
7 - accuracy: 0.8599
Epoch 101/500
6030/6030 [=====] - 1s 132us/sample - loss: 0.340
1 - accuracy: 0.8590
Epoch 102/500
6030/6030 [=====] - 1s 135us/sample - loss: 0.340
2 - accuracy: 0.8570
Epoch 103/500
6030/6030 [=====] - 1s 142us/sample - loss: 0.339
7 - accuracy: 0.8580
Epoch 104/500
6030/6030 [=====] - 1s 139us/sample - loss: 0.340
5 - accuracy: 0.8579
Epoch 105/500
6030/6030 [=====] - 1s 161us/sample - loss: 0.340
1 - accuracy: 0.8614
Epoch 106/500
6030/6030 [=====] - 1s 140us/sample - loss: 0.339
6 - accuracy: 0.8612
Epoch 107/500
6030/6030 [=====] - 1s 145us/sample - loss: 0.339
6 - accuracy: 0.8594
Epoch 108/500
6030/6030 [=====] - 1s 150us/sample - loss: 0.339
2 - accuracy: 0.8605
Epoch 109/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.339
3 - accuracy: 0.8587 - loss: 0.3483 - ac
Epoch 110/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.339
9 - accuracy: 0.8589
```

Epoch 111/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.340  
1 - accuracy: 0.8580  
Epoch 112/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.339  
3 - accuracy: 0.8597  
Epoch 113/500  
6030/6030 [=====] - 1s 133us/sample - loss: 0.339  
5 - accuracy: 0.8609  
Epoch 114/500  
6030/6030 [=====] - 1s 145us/sample - loss: 0.339  
5 - accuracy: 0.8619  
Epoch 115/500  
6030/6030 [=====] - 1s 160us/sample - loss: 0.338  
6 - accuracy: 0.8592  
Epoch 116/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.339  
1 - accuracy: 0.8622  
Epoch 117/500  
6030/6030 [=====] - 1s 167us/sample - loss: 0.339  
2 - accuracy: 0.8584  
Epoch 118/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.338  
3 - accuracy: 0.8604  
Epoch 119/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.338  
4 - accuracy: 0.8614  
Epoch 120/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.338  
8 - accuracy: 0.8622  
Epoch 121/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.339  
6 - accuracy: 0.8609  
Epoch 122/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.338  
3 - accuracy: 0.8580  
Epoch 123/500  
6030/6030 [=====] - 1s 215us/sample - loss: 0.338  
7 - accuracy: 0.8589  
Epoch 124/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.338  
5 - accuracy: 0.8604  
Epoch 125/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.339  
2 - accuracy: 0.8595  
Epoch 126/500  
6030/6030 [=====] - 1s 196us/sample - loss: 0.337  
5 - accuracy: 0.8614  
Epoch 127/500  
6030/6030 [=====] - 1s 210us/sample - loss: 0.337  
3 - accuracy: 0.8632  
Epoch 128/500  
6030/6030 [=====] - 1s 205us/sample - loss: 0.338  
6 - accuracy: 0.8602  
Epoch 129/500  
6030/6030 [=====] - 1s 188us/sample - loss: 0.338  
8 - accuracy: 0.8600  
Epoch 130/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.338  
5 - accuracy: 0.8597  
Epoch 131/500



```
6030/6030 [=====] - 1s 198us/sample - loss: 0.339
0 - accuracy: 0.8610
Epoch 132/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.338
4 - accuracy: 0.8609
Epoch 133/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.337
8 - accuracy: 0.8629
Epoch 134/500
6030/6030 [=====] - 1s 166us/sample - loss: 0.336
7 - accuracy: 0.8624
Epoch 135/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.338
3 - accuracy: 0.8622
Epoch 136/500
6030/6030 [=====] - 1s 167us/sample - loss: 0.337
7 - accuracy: 0.8599
Epoch 137/500
6030/6030 [=====] - 1s 165us/sample - loss: 0.337
6 - accuracy: 0.8610
Epoch 138/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.337
6 - accuracy: 0.8605
Epoch 139/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.338
2 - accuracy: 0.8614
Epoch 140/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.337
5 - accuracy: 0.8629
Epoch 141/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.337
9 - accuracy: 0.8607
Epoch 142/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.337
4 - accuracy: 0.8629
Epoch 143/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.336
9 - accuracy: 0.8633
Epoch 144/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.337
6 - accuracy: 0.8617
Epoch 145/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.338
1 - accuracy: 0.8629
Epoch 146/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.337
5 - accuracy: 0.8627
Epoch 147/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.336
8 - accuracy: 0.8615
Epoch 148/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.337
7 - accuracy: 0.8622
Epoch 149/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.336
8 - accuracy: 0.8605
Epoch 150/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.337
5 - accuracy: 0.8633
Epoch 151/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.336
```

```
6 - accuracy: 0.8610
Epoch 152/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.337
6 - accuracy: 0.8610
Epoch 153/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.337
1 - accuracy: 0.8627
Epoch 154/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.337
4 - accuracy: 0.8620
Epoch 155/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.336
5 - accuracy: 0.8638
Epoch 156/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.337
6 - accuracy: 0.8597
Epoch 157/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.336
8 - accuracy: 0.8615
Epoch 158/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.336
7 - accuracy: 0.8619
Epoch 159/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.337
4 - accuracy: 0.8614
Epoch 160/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.336
9 - accuracy: 0.8622
Epoch 161/500
6030/6030 [=====] - 1s 160us/sample - loss: 0.335
9 - accuracy: 0.8609
Epoch 246/500
6030/6030 [=====] - 1s 158us/sample - loss: 0.336
1 - accuracy: 0.8633
Epoch 247/500
6030/6030 [=====] - 1s 159us/sample - loss: 0.334
7 - accuracy: 0.8637
Epoch 248/500
6030/6030 [=====] - 1s 159us/sample - loss: 0.336
0 - accuracy: 0.8605
Epoch 249/500
6030/6030 [=====] - 1s 157us/sample - loss: 0.335
1 - accuracy: 0.8612
Epoch 250/500
6030/6030 [=====] - 1s 156us/sample - loss: 0.336
0 - accuracy: 0.8607
Epoch 251/500
6030/6030 [=====] - 1s 161us/sample - loss: 0.335
2 - accuracy: 0.8610
Epoch 252/500
6030/6030 [=====] - 1s 162us/sample - loss: 0.335
8 - accuracy: 0.8642
Epoch 253/500
6030/6030 [=====] - 1s 162us/sample - loss: 0.335
4 - accuracy: 0.8630
Epoch 254/500
6030/6030 [=====] - 1s 160us/sample - loss: 0.336
2 - accuracy: 0.8632
Epoch 255/500
6030/6030 [=====] - 1s 160us/sample - loss: 0.334
7 - accuracy: 0.8642
```

Epoch 256/500  
6030/6030 [=====] - 1s 163us/sample - loss: 0.336  
0 - accuracy: 0.8617  
Epoch 257/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.335  
8 - accuracy: 0.8629  
Epoch 258/500  
6030/6030 [=====] - 1s 164us/sample - loss: 0.335  
7 - accuracy: 0.8600  
Epoch 259/500  
6030/6030 [=====] - 2s 252us/sample - loss: 0.336  
1 - accuracy: 0.8617  
Epoch 260/500  
6030/6030 [=====] - 1s 207us/sample - loss: 0.335  
5 - accuracy: 0.8617  
Epoch 261/500  
6030/6030 [=====] - 1s 168us/sample - loss: 0.335  
7 - accuracy: 0.8624  
Epoch 262/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.335  
2 - accuracy: 0.8627  
Epoch 263/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.335  
6 - accuracy: 0.8632  
Epoch 264/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.335  
5 - accuracy: 0.8600  
Epoch 265/500  
6030/6030 [=====] - 1s 164us/sample - loss: 0.335  
9 - accuracy: 0.8604  
Epoch 266/500  
6030/6030 [=====] - 1s 163us/sample - loss: 0.335  
8 - accuracy: 0.8609  
Epoch 267/500  
6030/6030 [=====] - 1s 199us/sample - loss: 0.335  
6 - accuracy: 0.8617  
Epoch 268/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.335  
4 - accuracy: 0.8624  
Epoch 269/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.336  
2 - accuracy: 0.8637  
Epoch 270/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.335  
1 - accuracy: 0.8632  
Epoch 271/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.335  
0 - accuracy: 0.8614  
Epoch 272/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.336  
4 - accuracy: 0.8617  
Epoch 273/500  
6030/6030 [=====] - 1s 202us/sample - loss: 0.335  
2 - accuracy: 0.8632  
Epoch 274/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.335  
7 - accuracy: 0.8614  
Epoch 275/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.334  
9 - accuracy: 0.8624  
Epoch 276/500

```
6030/6030 [=====] - 1s 169us/sample - loss: 0.335
7 - accuracy: 0.8638
Epoch 277/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.336
0 - accuracy: 0.8604
Epoch 278/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.336
0 - accuracy: 0.8590
Epoch 279/500
6030/6030 [=====] - 1s 231us/sample - loss: 0.335
1 - accuracy: 0.8614
Epoch 280/500
6030/6030 [=====] - 2s 285us/sample - loss: 0.336
3 - accuracy: 0.8627
Epoch 281/500
6030/6030 [=====] - 1s 224us/sample - loss: 0.335
2 - accuracy: 0.8614 - loss:
Epoch 282/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.334
8 - accuracy: 0.8614
Epoch 283/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.336
8 - accuracy: 0.8620
Epoch 284/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.335
5 - accuracy: 0.8630
Epoch 285/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.334
5 - accuracy: 0.8629
Epoch 286/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.334
9 - accuracy: 0.8633
Epoch 287/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.335
6 - accuracy: 0.8604
Epoch 288/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.334
9 - accuracy: 0.8629
Epoch 289/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.335
8 - accuracy: 0.8612
Epoch 290/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.335
2 - accuracy: 0.8622
Epoch 291/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.334
5 - accuracy: 0.8624
Epoch 292/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.335
2 - accuracy: 0.8612
Epoch 293/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.335
3 - accuracy: 0.8622
Epoch 294/500
6030/6030 [=====] - 1s 151us/sample - loss: 0.336
1 - accuracy: 0.8600
Epoch 295/500
6030/6030 [=====] - 1s 143us/sample - loss: 0.335
9 - accuracy: 0.8652
Epoch 296/500
6030/6030 [=====] - 1s 159us/sample - loss: 0.335
```

```
9 - accuracy: 0.8624
Epoch 297/500
6030/6030 [=====] - 1s 159us/sample - loss: 0.335
1 - accuracy: 0.8607
Epoch 298/500
6030/6030 [=====] - 1s 142us/sample - loss: 0.336
2 - accuracy: 0.8624
Epoch 299/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.334
7 - accuracy: 0.8632
Epoch 300/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.335
9 - accuracy: 0.8599
Epoch 301/500
6030/6030 [=====] - 1s 161us/sample - loss: 0.335
8 - accuracy: 0.8619
Epoch 302/500
6030/6030 [=====] - 1s 166us/sample - loss: 0.335
2 - accuracy: 0.8619
Epoch 303/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.335
2 - accuracy: 0.8612
Epoch 304/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.335
3 - accuracy: 0.8622
Epoch 305/500
6030/6030 [=====] - 1s 154us/sample - loss: 0.335
0 - accuracy: 0.8597
Epoch 306/500
6030/6030 [=====] - 1s 243us/sample - loss: 0.335
2 - accuracy: 0.8612
Epoch 307/500
6030/6030 [=====] - 1s 161us/sample - loss: 0.336
0 - accuracy: 0.8609
Epoch 308/500
6030/6030 [=====] - 1s 155us/sample - loss: 0.335
0 - accuracy: 0.8642
Epoch 309/500
6030/6030 [=====] - 1s 150us/sample - loss: 0.335
7 - accuracy: 0.8622
Epoch 310/500
6030/6030 [=====] - 1s 145us/sample - loss: 0.335
4 - accuracy: 0.8629
Epoch 311/500
6030/6030 [=====] - 1s 146us/sample - loss: 0.335
4 - accuracy: 0.8600
Epoch 312/500
6030/6030 [=====] - 1s 142us/sample - loss: 0.334
9 - accuracy: 0.8622
Epoch 313/500
6030/6030 [=====] - 1s 148us/sample - loss: 0.334
8 - accuracy: 0.8615
Epoch 314/500
6030/6030 [=====] - 1s 137us/sample - loss: 0.335
1 - accuracy: 0.8610
Epoch 315/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.335
0 - accuracy: 0.8633
Epoch 316/500
6030/6030 [=====] - 1s 139us/sample - loss: 0.335
2 - accuracy: 0.8630
```

Epoch 317/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.335  
8 - accuracy: 0.8624  
Epoch 318/500  
6030/6030 [=====] - 2s 320us/sample - loss: 0.335  
4 - accuracy: 0.8607 - loss: 0  
Epoch 319/500  
6030/6030 [=====] - 2s 290us/sample - loss: 0.334  
8 - accuracy: 0.8620  
Epoch 320/500  
6030/6030 [=====] - 1s 219us/sample - loss: 0.335  
3 - accuracy: 0.8612  
Epoch 321/500  
6030/6030 [=====] - 1s 210us/sample - loss: 0.335  
5 - accuracy: 0.8607  
Epoch 322/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.333  
9 - accuracy: 0.8640  
Epoch 323/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.335  
2 - accuracy: 0.8640  
Epoch 324/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.334  
6 - accuracy: 0.8630  
Epoch 325/500  
6030/6030 [=====] - 1s 150us/sample - loss: 0.335  
4 - accuracy: 0.8622  
Epoch 326/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.334  
9 - accuracy: 0.8635  
Epoch 327/500  
6030/6030 [=====] - 1s 158us/sample - loss: 0.335  
1 - accuracy: 0.8612  
Epoch 328/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.335  
2 - accuracy: 0.8629  
Epoch 329/500  
6030/6030 [=====] - 1s 160us/sample - loss: 0.335  
4 - accuracy: 0.8632  
Epoch 330/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.335  
5 - accuracy: 0.8620  
Epoch 331/500  
6030/6030 [=====] - 1s 152us/sample - loss: 0.334  
7 - accuracy: 0.8630  
Epoch 332/500  
6030/6030 [=====] - 1s 168us/sample - loss: 0.335  
0 - accuracy: 0.8622  
Epoch 333/500  
6030/6030 [=====] - 1s 146us/sample - loss: 0.334  
5 - accuracy: 0.8637  
Epoch 334/500  
6030/6030 [=====] - 2s 260us/sample - loss: 0.335  
7 - accuracy: 0.8633  
Epoch 335/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.335  
5 - accuracy: 0.8620  
Epoch 336/500  
6030/6030 [=====] - 1s 152us/sample - loss: 0.335  
6 - accuracy: 0.8617  
Epoch 337/500

```
6030/6030 [=====] - 1s 196us/sample - loss: 0.335
0 - accuracy: 0.8612
Epoch 338/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.335
1 - accuracy: 0.8610
Epoch 339/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.335
2 - accuracy: 0.8624
Epoch 340/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.335
0 - accuracy: 0.8617
Epoch 341/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.334
4 - accuracy: 0.8650
Epoch 342/500
6030/6030 [=====] - 1s 204us/sample - loss: 0.335
3 - accuracy: 0.8619
Epoch 343/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.335
5 - accuracy: 0.8617
Epoch 344/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.335
2 - accuracy: 0.8627
Epoch 345/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.334
7 - accuracy: 0.8622
Epoch 346/500
6030/6030 [=====] - 1s 166us/sample - loss: 0.335
0 - accuracy: 0.8617
Epoch 347/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.334
8 - accuracy: 0.8605
Epoch 348/500
6030/6030 [=====] - 2s 317us/sample - loss: 0.334
9 - accuracy: 0.8620
Epoch 349/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.335
0 - accuracy: 0.8615 - loss: 0.3353 - accuracy: 0.86
Epoch 350/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.334
9 - accuracy: 0.8629
Epoch 351/500
6030/6030 [=====] - 1s 163us/sample - loss: 0.335
5 - accuracy: 0.8619
Epoch 352/500
6030/6030 [=====] - 1s 157us/sample - loss: 0.334
7 - accuracy: 0.8610
Epoch 353/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.335
8 - accuracy: 0.8627
Epoch 354/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.335
3 - accuracy: 0.8619
Epoch 355/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.334
8 - accuracy: 0.8604
Epoch 356/500
6030/6030 [=====] - 1s 160us/sample - loss: 0.334
8 - accuracy: 0.8637
Epoch 357/500
6030/6030 [=====] - 1s 157us/sample - loss: 0.335
```

```
2 - accuracy: 0.8614
Epoch 358/500
6030/6030 [=====] - 1s 161us/sample - loss: 0.335
2 - accuracy: 0.8602
Epoch 359/500
6030/6030 [=====] - 1s 156us/sample - loss: 0.335
2 - accuracy: 0.8620
Epoch 360/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.335
3 - accuracy: 0.8637
Epoch 361/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.334
3 - accuracy: 0.8609
Epoch 362/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.335
2 - accuracy: 0.8624
Epoch 363/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.335
1 - accuracy: 0.8604
Epoch 364/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.334
8 - accuracy: 0.8619
Epoch 365/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.335
3 - accuracy: 0.8627
Epoch 366/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.336
4 - accuracy: 0.8605
Epoch 367/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.334
9 - accuracy: 0.8624
Epoch 368/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.334
2 - accuracy: 0.8637
Epoch 369/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.335
0 - accuracy: 0.8597
Epoch 370/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.334
9 - accuracy: 0.8637
Epoch 371/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.335
4 - accuracy: 0.8599
Epoch 372/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.335
1 - accuracy: 0.8605
Epoch 373/500
6030/6030 [=====] - 1s 159us/sample - loss: 0.335
1 - accuracy: 0.8632
Epoch 374/500
6030/6030 [=====] - 1s 154us/sample - loss: 0.334
4 - accuracy: 0.8620
Epoch 375/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.334
7 - accuracy: 0.8607
Epoch 376/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.334
7 - accuracy: 0.8622
Epoch 377/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.334
4 - accuracy: 0.8622
```



Epoch 378/500  
6030/6030 [=====] - 1s 177us/sample - loss: 0.335  
1 - accuracy: 0.8610  
Epoch 379/500  
6030/6030 [=====] - 1s 159us/sample - loss: 0.335  
3 - accuracy: 0.8612  
Epoch 380/500  
6030/6030 [=====] - 1s 151us/sample - loss: 0.334  
5 - accuracy: 0.8610  
Epoch 381/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.334  
5 - accuracy: 0.8624  
Epoch 382/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.334  
2 - accuracy: 0.8625  
Epoch 383/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.335  
1 - accuracy: 0.8604  
Epoch 384/500  
6030/6030 [=====] - 1s 164us/sample - loss: 0.334  
7 - accuracy: 0.8617  
Epoch 385/500  
6030/6030 [=====] - 1s 211us/sample - loss: 0.334  
0 - accuracy: 0.8630  
Epoch 386/500  
6030/6030 [=====] - 1s 162us/sample - loss: 0.335  
1 - accuracy: 0.8605  
Epoch 387/500  
6030/6030 [=====] - 1s 213us/sample - loss: 0.334  
9 - accuracy: 0.8625  
Epoch 388/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.334  
6 - accuracy: 0.8620  
Epoch 389/500  
6030/6030 [=====] - 1s 163us/sample - loss: 0.334  
4 - accuracy: 0.8620  
Epoch 390/500  
6030/6030 [=====] - 1s 167us/sample - loss: 0.334  
7 - accuracy: 0.8610  
Epoch 391/500  
6030/6030 [=====] - 1s 160us/sample - loss: 0.334  
9 - accuracy: 0.8584  
Epoch 392/500  
6030/6030 [=====] - 1s 162us/sample - loss: 0.334  
0 - accuracy: 0.8632  
Epoch 393/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.335  
2 - accuracy: 0.8612  
Epoch 394/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.334  
7 - accuracy: 0.8625  
Epoch 395/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.334  
5 - accuracy: 0.8619  
Epoch 396/500  
6030/6030 [=====] - 1s 164us/sample - loss: 0.334  
8 - accuracy: 0.8600  
Epoch 397/500  
6030/6030 [=====] - 1s 183us/sample - loss: 0.335  
1 - accuracy: 0.8604  
Epoch 398/500

```
6030/6030 [=====] - 2s 251us/sample - loss: 0.334
4 - accuracy: 0.8614
Epoch 399/500
6030/6030 [=====] - 1s 242us/sample - loss: 0.335
4 - accuracy: 0.8605
Epoch 400/500
6030/6030 [=====] - 2s 260us/sample - loss: 0.334
2 - accuracy: 0.8624 - 1
Epoch 401/500
6030/6030 [=====] - 2s 329us/sample - loss: 0.335
2 - accuracy: 0.8637
Epoch 402/500
6030/6030 [=====] - 2s 326us/sample - loss: 0.334
8 - accuracy: 0.8615
Epoch 403/500
6030/6030 [=====] - 2s 301us/sample - loss: 0.334
8 - accuracy: 0.8622
Epoch 404/500
6030/6030 [=====] - 2s 340us/sample - loss: 0.334
9 - accuracy: 0.8635
Epoch 405/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.334
8 - accuracy: 0.8600
Epoch 406/500
6030/6030 [=====] - 1s 224us/sample - loss: 0.334
9 - accuracy: 0.8612
Epoch 407/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.334
1 - accuracy: 0.8612
Epoch 408/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.334
7 - accuracy: 0.8610
Epoch 409/500
6030/6030 [=====] - 2s 258us/sample - loss: 0.334
8 - accuracy: 0.8624
Epoch 410/500
6030/6030 [=====] - 1s 207us/sample - loss: 0.337
2 - accuracy: 0.8602
Epoch 411/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.335
2 - accuracy: 0.8637
Epoch 412/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.334
5 - accuracy: 0.8614
Epoch 413/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.334
7 - accuracy: 0.8609
Epoch 414/500
6030/6030 [=====] - 1s 232us/sample - loss: 0.334
1 - accuracy: 0.8627
Epoch 415/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.335
5 - accuracy: 0.8637
Epoch 416/500
6030/6030 [=====] - 2s 394us/sample - loss: 0.334
4 - accuracy: 0.8615
Epoch 417/500
6030/6030 [=====] - 2s 271us/sample - loss: 0.334
5 - accuracy: 0.8605
Epoch 418/500
6030/6030 [=====] - 2s 304us/sample - loss: 0.334
```

```
6 - accuracy: 0.8607 - loss: 0.3378 - ac
Epoch 419/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.334
6 - accuracy: 0.8630
Epoch 420/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.334
6 - accuracy: 0.8612
Epoch 421/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.335
4 - accuracy: 0.8617
Epoch 422/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.335
1 - accuracy: 0.8627
Epoch 423/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.334
6 - accuracy: 0.8612
Epoch 424/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.333
9 - accuracy: 0.8642
Epoch 425/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.334
2 - accuracy: 0.8595
Epoch 426/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.334
0 - accuracy: 0.8604
Epoch 427/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.335
6 - accuracy: 0.8619
Epoch 428/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.334
3 - accuracy: 0.8619
Epoch 429/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.334
6 - accuracy: 0.8620
Epoch 430/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.334
5 - accuracy: 0.8614
Epoch 431/500
6030/6030 [=====] - 1s 245us/sample - loss: 0.334
4 - accuracy: 0.8617
Epoch 432/500
6030/6030 [=====] - 2s 390us/sample - loss: 0.334
6 - accuracy: 0.8609
Epoch 433/500
6030/6030 [=====] - 2s 277us/sample - loss: 0.334
8 - accuracy: 0.8624
Epoch 434/500
6030/6030 [=====] - 2s 273us/sample - loss: 0.334
5 - accuracy: 0.8622
Epoch 435/500
6030/6030 [=====] - 2s 251us/sample - loss: 0.334
8 - accuracy: 0.8614
Epoch 436/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.334
2 - accuracy: 0.8604
Epoch 437/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.335
1 - accuracy: 0.8610
Epoch 438/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.334
7 - accuracy: 0.8612
```

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Epoch 439/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.334
9 - accuracy: 0.8605
Epoch 440/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.334
6 - accuracy: 0.8624
Epoch 441/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.334
2 - accuracy: 0.8604
Epoch 442/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.333
8 - accuracy: 0.8604
Epoch 443/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.334
5 - accuracy: 0.8602
Epoch 444/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.334
3 - accuracy: 0.8624
Epoch 445/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.335
2 - accuracy: 0.8600
Epoch 446/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.334
2 - accuracy: 0.8605
Epoch 447/500
6030/6030 [=====] - 2s 282us/sample - loss: 0.334
7 - accuracy: 0.8624
Epoch 448/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.334
5 - accuracy: 0.8622
Epoch 449/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.335
6 - accuracy: 0.8609
Epoch 450/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.334
0 - accuracy: 0.8605 - loss: 0.342
Epoch 451/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.335
2 - accuracy: 0.8620
Epoch 452/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.334
7 - accuracy: 0.8612
Epoch 453/500
6030/6030 [=====] - 1s 167us/sample - loss: 0.335
0 - accuracy: 0.8589
Epoch 454/500
6030/6030 [=====] - 1s 165us/sample - loss: 0.334
8 - accuracy: 0.8604
Epoch 455/500
6030/6030 [=====] - ETA: 0s - loss: 0.3340 - accuracy: 0.86 - 1s 198us/sample - loss: 0.3343 - accuracy: 0.8619
Epoch 456/500
6030/6030 [=====] - 2s 251us/sample - loss: 0.334
4 - accuracy: 0.8605
Epoch 457/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.333
8 - accuracy: 0.8632
Epoch 458/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.334
8 - accuracy: 0.8620
Epoch 459/500
```

```
6030/6030 [=====] - 1s 210us/sample - loss: 0.334
5 - accuracy: 0.8619
Epoch 460/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.334
0 - accuracy: 0.8612
Epoch 461/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.335
4 - accuracy: 0.8599
Epoch 462/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.335
5 - accuracy: 0.8625
Epoch 463/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.335
0 - accuracy: 0.8614
Epoch 464/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.334
7 - accuracy: 0.8615
Epoch 465/500
6030/6030 [=====] - ETA: 0s - loss: 0.3362 - accu
racy: 0.85 - 1s 173us/sample - loss: 0.3352 - accuracy: 0.8599
Epoch 466/500
6030/6030 [=====] - 1s 162us/sample - loss: 0.334
0 - accuracy: 0.8587
Epoch 467/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.334
7 - accuracy: 0.8619
Epoch 468/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.335
5 - accuracy: 0.8622
Epoch 469/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.335
0 - accuracy: 0.8594
Epoch 470/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.334
7 - accuracy: 0.8635
Epoch 471/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.335
1 - accuracy: 0.8610
Epoch 472/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.334
9 - accuracy: 0.8604
Epoch 473/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.334
4 - accuracy: 0.8612
Epoch 474/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.334
0 - accuracy: 0.8622
Epoch 475/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.334
2 - accuracy: 0.8627
Epoch 476/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.335
0 - accuracy: 0.8607
Epoch 477/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.334
8 - accuracy: 0.8620 - loss:
Epoch 478/500
6030/6030 [=====] - 1s 225us/sample - loss: 0.334
2 - accuracy: 0.8617
Epoch 479/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.335
```

```
0 - accuracy: 0.8597
Epoch 480/500
6030/6030 [=====] - 1s 223us/sample - loss: 0.333
8 - accuracy: 0.8617
Epoch 481/500
6030/6030 [=====] - 1s 246us/sample - loss: 0.334
2 - accuracy: 0.8640
Epoch 482/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.335
0 - accuracy: 0.8615
Epoch 483/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.334
6 - accuracy: 0.8607
Epoch 484/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.334
2 - accuracy: 0.8622
Epoch 485/500
6030/6030 [=====] - 1s 236us/sample - loss: 0.335
1 - accuracy: 0.8599
Epoch 486/500
6030/6030 [=====] - 1s 243us/sample - loss: 0.334
3 - accuracy: 0.8600 - 1
Epoch 487/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.334
4 - accuracy: 0.8638
Epoch 488/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.334
1 - accuracy: 0.8619
Epoch 489/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.334
8 - accuracy: 0.8625
Epoch 490/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.334
1 - accuracy: 0.8604
Epoch 491/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.335
0 - accuracy: 0.8614
Epoch 492/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.334
8 - accuracy: 0.8630
Epoch 493/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.334
8 - accuracy: 0.8642
Epoch 494/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.334
1 - accuracy: 0.8607
Epoch 495/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.334
9 - accuracy: 0.8590
Epoch 496/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.334
1 - accuracy: 0.8617
Epoch 497/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.334
8 - accuracy: 0.8607
Epoch 498/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.335
3 - accuracy: 0.8609
Epoch 499/500
6030/6030 [=====] - 2s 250us/sample - loss: 0.334
4 - accuracy: 0.8630
```

```
Epoch 500/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.334
8 - accuracy: 0.8629
Train on 6030 samples
Epoch 1/500
6030/6030 [=====] - 2s 267us/sample - loss: 0.601
2 - accuracy: 0.7910
Epoch 2/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.450
4 - accuracy: 0.7910
Epoch 3/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.439
0 - accuracy: 0.7910
Epoch 4/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.435
1 - accuracy: 0.7910
Epoch 5/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.431
5 - accuracy: 0.7910
Epoch 6/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.428
8 - accuracy: 0.7910
Epoch 7/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.426
6 - accuracy: 0.7910
Epoch 8/500
6030/6030 [=====] - ETA: 0s - loss: 0.4243 - accuracy: 0.79 - 1s 217us/sample - loss: 0.4243 - accuracy: 0.7980
Epoch 9/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.423
4 - accuracy: 0.8177
Epoch 10/500
6030/6030 [=====] - 2s 249us/sample - loss: 0.422
0 - accuracy: 0.8209
Epoch 11/500
6030/6030 [=====] - 1s 234us/sample - loss: 0.421
0 - accuracy: 0.8234
Epoch 12/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.419
8 - accuracy: 0.8250
Epoch 13/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.419
1 - accuracy: 0.8257
Epoch 14/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.418
3 - accuracy: 0.8275
Epoch 15/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.417
6 - accuracy: 0.8285
Epoch 16/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.417
3 - accuracy: 0.8280
Epoch 17/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.416
3 - accuracy: 0.8287
Epoch 18/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.415
9 - accuracy: 0.8287
Epoch 19/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.415
4 - accuracy: 0.8290
```

```
Epoch 20/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.415
0 - accuracy: 0.8294
Epoch 21/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.414
2 - accuracy: 0.8299
Epoch 22/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.413
8 - accuracy: 0.8300
Epoch 23/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.413
3 - accuracy: 0.8284
Epoch 24/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.413
1 - accuracy: 0.8297
Epoch 25/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.412
6 - accuracy: 0.8310
Epoch 26/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.412
2 - accuracy: 0.8294
Epoch 27/500
6030/6030 [=====] - 1s 189us/sample - loss: 0.412
0 - accuracy: 0.8295
Epoch 28/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.411
3 - accuracy: 0.8285
Epoch 29/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.411
5 - accuracy: 0.8308
Epoch 30/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.411
5 - accuracy: 0.8297
Epoch 31/500
6030/6030 [=====] - 1s 162us/sample - loss: 0.410
9 - accuracy: 0.8303
Epoch 32/500
6030/6030 [=====] - 1s 166us/sample - loss: 0.410
8 - accuracy: 0.8290
Epoch 33/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.410
6 - accuracy: 0.8299
Epoch 34/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.410
0 - accuracy: 0.8300
Epoch 35/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.410
1 - accuracy: 0.8294
Epoch 36/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.409
9 - accuracy: 0.8297
Epoch 37/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.409
7 - accuracy: 0.8302
Epoch 38/500
6030/6030 [=====] - 1s 208us/sample - loss: 0.409
9 - accuracy: 0.8295
Epoch 39/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.409
0 - accuracy: 0.8322
Epoch 40/500
```



```
6030/6030 [=====] - 1s 197us/sample - loss: 0.409
7 - accuracy: 0.8299
Epoch 41/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.409
2 - accuracy: 0.8307
Epoch 42/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.409
1 - accuracy: 0.8287
Epoch 43/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.409
1 - accuracy: 0.8302
Epoch 44/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.408
9 - accuracy: 0.8303
Epoch 45/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.408
7 - accuracy: 0.8289
Epoch 46/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.408
6 - accuracy: 0.8302
Epoch 47/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.408
2 - accuracy: 0.8294
Epoch 48/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.408
5 - accuracy: 0.8308
Epoch 49/500
6030/6030 [=====] - 1s 166us/sample - loss: 0.408
2 - accuracy: 0.8312
Epoch 50/500
6030/6030 [=====] - 1s 165us/sample - loss: 0.408
5 - accuracy: 0.8310
Epoch 51/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.408
0 - accuracy: 0.8300
Epoch 52/500
6030/6030 [=====] - 1s 231us/sample - loss: 0.408
3 - accuracy: 0.8290
Epoch 53/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.408
0 - accuracy: 0.8294
Epoch 54/500
6030/6030 [=====] - 1s 239us/sample - loss: 0.407
7 - accuracy: 0.8294
Epoch 55/500
6030/6030 [=====] - 2s 257us/sample - loss: 0.407
4 - accuracy: 0.8299 - loss: 0.4065 - accuracy: 0.83
Epoch 56/500
6030/6030 [=====] - 3s 459us/sample - loss: 0.407
6 - accuracy: 0.8305
Epoch 57/500
6030/6030 [=====] - 2s 261us/sample - loss: 0.407
5 - accuracy: 0.8303
Epoch 58/500
6030/6030 [=====] - 2s 340us/sample - loss: 0.407
1 - accuracy: 0.8299
Epoch 59/500
6030/6030 [=====] - 1s 245us/sample - loss: 0.407
4 - accuracy: 0.8299
Epoch 60/500
6030/6030 [=====] - 2s 268us/sample - loss: 0.407
```

```
7 - accuracy: 0.8302 - loss: 0.4079 - accuracy
Epoch 61/500
6030/6030 [=====] - 1s 158us/sample - loss: 0.407
2 - accuracy: 0.8308
Epoch 62/500
6030/6030 [=====] - 1s 241us/sample - loss: 0.407
4 - accuracy: 0.8303
Epoch 63/500
6030/6030 [=====] - 1s 156us/sample - loss: 0.407
1 - accuracy: 0.8307
Epoch 64/500
6030/6030 [=====] - 1s 228us/sample - loss: 0.406
9 - accuracy: 0.8302
Epoch 65/500
6030/6030 [=====] - 2s 283us/sample - loss: 0.407
0 - accuracy: 0.8290 - loss:
Epoch 66/500
6030/6030 [=====] - 1s 165us/sample - loss: 0.406
8 - accuracy: 0.8299
Epoch 67/500
6030/6030 [=====] - 1s 157us/sample - loss: 0.406
7 - accuracy: 0.8295
Epoch 68/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.406
9 - accuracy: 0.8279 - loss: 0.4086 - accuracy:
Epoch 69/500
6030/6030 [=====] - 1s 157us/sample - loss: 0.406
7 - accuracy: 0.8312
Epoch 70/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.406
8 - accuracy: 0.8297
Epoch 71/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.406
5 - accuracy: 0.8295
Epoch 72/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.406
9 - accuracy: 0.8317
Epoch 73/500
6030/6030 [=====] - 1s 163us/sample - loss: 0.406
2 - accuracy: 0.8287
Epoch 74/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.406
1 - accuracy: 0.8289
Epoch 75/500
6030/6030 [=====] - 1s 162us/sample - loss: 0.406
6 - accuracy: 0.8299
Epoch 76/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.406
4 - accuracy: 0.8307
Epoch 77/500
6030/6030 [=====] - 2s 327us/sample - loss: 0.406
4 - accuracy: 0.8313
Epoch 78/500
6030/6030 [=====] - 1s 220us/sample - loss: 0.406
5 - accuracy: 0.8308
Epoch 79/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.406
0 - accuracy: 0.8289
Epoch 80/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.405
9 - accuracy: 0.8299
```

Epoch 81/500  
6030/6030 [=====] - 1s 189us/sample - loss: 0.406  
3 - accuracy: 0.8290

Epoch 82/500  
6030/6030 [=====] - 2s 308us/sample - loss: 0.406  
0 - accuracy: 0.8297

Epoch 83/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.406  
0 - accuracy: 0.8307

Epoch 84/500  
6030/6030 [=====] - 2s 308us/sample - loss: 0.406  
1 - accuracy: 0.8312

Epoch 85/500  
6030/6030 [=====] - 1s 149us/sample - loss: 0.406  
1 - accuracy: 0.8310

Epoch 86/500  
6030/6030 [=====] - 1s 149us/sample - loss: 0.406  
0 - accuracy: 0.8297

Epoch 87/500  
6030/6030 [=====] - 1s 179us/sample - loss: 0.406  
2 - accuracy: 0.8318

Epoch 88/500  
6030/6030 [=====] - 1s 160us/sample - loss: 0.406  
0 - accuracy: 0.8297

Epoch 89/500  
6030/6030 [=====] - 1s 156us/sample - loss: 0.405  
9 - accuracy: 0.8307

Epoch 90/500  
6030/6030 [=====] - 1s 163us/sample - loss: 0.405  
7 - accuracy: 0.8295

Epoch 91/500  
6030/6030 [=====] - 1s 161us/sample - loss: 0.406  
0 - accuracy: 0.8300

Epoch 92/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.405  
7 - accuracy: 0.8302

Epoch 93/500  
6030/6030 [=====] - 1s 165us/sample - loss: 0.405  
8 - accuracy: 0.8312

Epoch 94/500  
6030/6030 [=====] - 2s 260us/sample - loss: 0.405  
6 - accuracy: 0.8308

Epoch 95/500  
6030/6030 [=====] - 1s 237us/sample - loss: 0.406  
2 - accuracy: 0.8307

Epoch 96/500  
6030/6030 [=====] - 1s 146us/sample - loss: 0.405  
7 - accuracy: 0.8308

Epoch 97/500  
6030/6030 [=====] - 1s 151us/sample - loss: 0.405  
5 - accuracy: 0.8323

Epoch 98/500  
6030/6030 [=====] - 1s 147us/sample - loss: 0.405  
7 - accuracy: 0.8305

Epoch 99/500  
6030/6030 [=====] - 1s 146us/sample - loss: 0.405  
2 - accuracy: 0.8308

Epoch 100/500  
6030/6030 [=====] - 1s 155us/sample - loss: 0.405  
7 - accuracy: 0.8302

Epoch 101/500

```
6030/6030 [=====] - 1s 192us/sample - loss: 0.405
3 - accuracy: 0.8294
Epoch 102/500
6030/6030 [=====] - 1s 153us/sample - loss: 0.405
3 - accuracy: 0.8305
Epoch 103/500
6030/6030 [=====] - 1s 150us/sample - loss: 0.405
3 - accuracy: 0.8292
Epoch 104/500
6030/6030 [=====] - 1s 151us/sample - loss: 0.405
8 - accuracy: 0.8320
Epoch 105/500
6030/6030 [=====] - 1s 160us/sample - loss: 0.405
8 - accuracy: 0.8305
Epoch 106/500
6030/6030 [=====] - 1s 162us/sample - loss: 0.405
7 - accuracy: 0.8318
Epoch 107/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.405
3 - accuracy: 0.8305
Epoch 108/500
6030/6030 [=====] - 1s 153us/sample - loss: 0.405
0 - accuracy: 0.8302
Epoch 109/500
6030/6030 [=====] - 1s 150us/sample - loss: 0.405
2 - accuracy: 0.8313
Epoch 110/500
6030/6030 [=====] - 1s 151us/sample - loss: 0.405
3 - accuracy: 0.8300
Epoch 111/500
6030/6030 [=====] - 1s 148us/sample - loss: 0.405
3 - accuracy: 0.8292
Epoch 112/500
6030/6030 [=====] - 1s 147us/sample - loss: 0.405
4 - accuracy: 0.8303
Epoch 113/500
6030/6030 [=====] - 1s 145us/sample - loss: 0.405
3 - accuracy: 0.8307
Epoch 114/500
6030/6030 [=====] - 1s 149us/sample - loss: 0.405
4 - accuracy: 0.8303
Epoch 115/500
6030/6030 [=====] - 1s 166us/sample - loss: 0.405
2 - accuracy: 0.8307
Epoch 116/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.405
3 - accuracy: 0.8312
Epoch 117/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.405
0 - accuracy: 0.8305
Epoch 118/500
6030/6030 [=====] - 1s 157us/sample - loss: 0.405
1 - accuracy: 0.8315
Epoch 119/500
6030/6030 [=====] - 1s 153us/sample - loss: 0.405
0 - accuracy: 0.8318
Epoch 120/500
6030/6030 [=====] - 1s 156us/sample - loss: 0.404
9 - accuracy: 0.8317
Epoch 121/500
6030/6030 [=====] - 1s 156us/sample - loss: 0.405
```

```
0 - accuracy: 0.8312
Epoch 122/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.404
6 - accuracy: 0.8297
Epoch 123/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.405
0 - accuracy: 0.8307
Epoch 124/500
6030/6030 [=====] - 1s 227us/sample - loss: 0.404
9 - accuracy: 0.8315
Epoch 125/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.404
9 - accuracy: 0.8303
Epoch 126/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.405
3 - accuracy: 0.8308
Epoch 127/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.405
1 - accuracy: 0.8300
Epoch 128/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.404
9 - accuracy: 0.8310
Epoch 129/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.404
7 - accuracy: 0.8313
Epoch 130/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.404
7 - accuracy: 0.8305
Epoch 131/500
6030/6030 [=====] - 1s 230us/sample - loss: 0.405
1 - accuracy: 0.8299
Epoch 132/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.405
0 - accuracy: 0.8308
Epoch 133/500
6030/6030 [=====] - 1s 209us/sample - loss: 0.404
7 - accuracy: 0.8308
Epoch 134/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.404
5 - accuracy: 0.8318
Epoch 135/500
6030/6030 [=====] - 1s 151us/sample - loss: 0.404
8 - accuracy: 0.8313
Epoch 136/500
6030/6030 [=====] - 1s 146us/sample - loss: 0.404
7 - accuracy: 0.8303
Epoch 137/500
6030/6030 [=====] - 1s 153us/sample - loss: 0.405
2 - accuracy: 0.8310
Epoch 138/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.404
7 - accuracy: 0.8308
Epoch 139/500
6030/6030 [=====] - 1s 149us/sample - loss: 0.405
1 - accuracy: 0.8315
Epoch 140/500
6030/6030 [=====] - 1s 145us/sample - loss: 0.404
7 - accuracy: 0.8317
Epoch 141/500
6030/6030 [=====] - 1s 150us/sample - loss: 0.404
5 - accuracy: 0.8305
```

Epoch 142/500  
6030/6030 [=====] - 1s 152us/sample - loss: 0.404  
6 - accuracy: 0.8312  
Epoch 143/500  
6030/6030 [=====] - 1s 154us/sample - loss: 0.405  
3 - accuracy: 0.8318  
Epoch 144/500  
6030/6030 [=====] - 1s 153us/sample - loss: 0.404  
4 - accuracy: 0.8302  
Epoch 145/500  
6030/6030 [=====] - 1s 147us/sample - loss: 0.404  
8 - accuracy: 0.8305  
Epoch 146/500  
6030/6030 [=====] - 1s 148us/sample - loss: 0.404  
7 - accuracy: 0.8312  
Epoch 147/500  
6030/6030 [=====] - 1s 187us/sample - loss: 0.404  
5 - accuracy: 0.8308  
Epoch 148/500  
6030/6030 [=====] - 1s 151us/sample - loss: 0.404  
9 - accuracy: 0.8313  
Epoch 149/500  
6030/6030 [=====] - 1s 154us/sample - loss: 0.404  
6 - accuracy: 0.8312  
Epoch 150/500  
6030/6030 [=====] - 1s 146us/sample - loss: 0.404  
4 - accuracy: 0.8299  
Epoch 151/500  
6030/6030 [=====] - 1s 147us/sample - loss: 0.404  
9 - accuracy: 0.8305  
Epoch 152/500  
6030/6030 [=====] - 1s 150us/sample - loss: 0.404  
6 - accuracy: 0.8323  
Epoch 153/500  
6030/6030 [=====] - 1s 147us/sample - loss: 0.404  
6 - accuracy: 0.8315  
Epoch 154/500  
6030/6030 [=====] - 1s 147us/sample - loss: 0.404  
4 - accuracy: 0.8307  
Epoch 155/500  
6030/6030 [=====] - 1s 146us/sample - loss: 0.404  
5 - accuracy: 0.8305  
Epoch 156/500  
6030/6030 [=====] - 1s 146us/sample - loss: 0.404  
6 - accuracy: 0.8315  
Epoch 157/500  
6030/6030 [=====] - 1s 148us/sample - loss: 0.404  
2 - accuracy: 0.8307  
Epoch 158/500  
6030/6030 [=====] - 1s 146us/sample - loss: 0.404  
7 - accuracy: 0.8295  
Epoch 159/500  
6030/6030 [=====] - 1s 211us/sample - loss: 0.404  
2 - accuracy: 0.8302  
Epoch 160/500  
6030/6030 [=====] - 1s 166us/sample - loss: 0.404  
8 - accuracy: 0.8307  
Epoch 161/500  
6030/6030 [=====] - 1s 198us/sample - loss: 0.404  
2 - accuracy: 0.8320  
Epoch 162/500

```
6030/6030 [=====] - 1s 183us/sample - loss: 0.404
3 - accuracy: 0.8307
Epoch 163/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.404
0 - accuracy: 0.8300
Epoch 164/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.404
1 - accuracy: 0.8292
Epoch 165/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.404
6 - accuracy: 0.8302
Epoch 166/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.404
6 - accuracy: 0.8307
Epoch 167/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.404
2 - accuracy: 0.8312
Epoch 168/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.404
4 - accuracy: 0.8312
Epoch 169/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.404
1 - accuracy: 0.8302
Epoch 170/500
6030/6030 [=====] - 1s 162us/sample - loss: 0.404
1 - accuracy: 0.8313
Epoch 171/500
6030/6030 [=====] - 1s 154us/sample - loss: 0.404
4 - accuracy: 0.8297
Epoch 172/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.404
6 - accuracy: 0.8310
Epoch 173/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.404
3 - accuracy: 0.8303
Epoch 174/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.404
3 - accuracy: 0.8308
Epoch 175/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.404
1 - accuracy: 0.8315
Epoch 176/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.404
0 - accuracy: 0.8303
Epoch 177/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.404
1 - accuracy: 0.8325
Epoch 178/500
6030/6030 [=====] - 1s 235us/sample - loss: 0.404
5 - accuracy: 0.8305
Epoch 179/500
6030/6030 [=====] - 2s 414us/sample - loss: 0.404
1 - accuracy: 0.8317
Epoch 180/500
6030/6030 [=====] - 2s 291us/sample - loss: 0.404
3 - accuracy: 0.8299
Epoch 181/500
6030/6030 [=====] - 2s 392us/sample - loss: 0.404
1 - accuracy: 0.8299 - loss: 0.4080 - accu - ETA: 1s - loss: 0.4090 - accu
racy: 0. - ETA: 1s -
Epoch 182/500
```

```
6030/6030 [=====] - 1s 210us/sample - loss: 0.403
7 - accuracy: 0.8308
Epoch 183/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.404
1 - accuracy: 0.8313
Epoch 184/500
6030/6030 [=====] - 1s 171us/sample - loss: 0.404
0 - accuracy: 0.8300
Epoch 185/500
6030/6030 [=====] - 1s 188us/sample - loss: 0.403
8 - accuracy: 0.8303
Epoch 186/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.403
7 - accuracy: 0.8297
Epoch 187/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.404
0 - accuracy: 0.8294
Epoch 188/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.403
6 - accuracy: 0.8307
Epoch 189/500
6030/6030 [=====] - 1s 215us/sample - loss: 0.403
5 - accuracy: 0.8297
Epoch 190/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.403
9 - accuracy: 0.8313
Epoch 191/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.403
5 - accuracy: 0.8325
Epoch 192/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.403
6 - accuracy: 0.8299
Epoch 193/500
6030/6030 [=====] - 1s 169us/sample - loss: 0.404
0 - accuracy: 0.8308
Epoch 194/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.403
3 - accuracy: 0.8285
Epoch 195/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.403
9 - accuracy: 0.8305 - loss: 0.4041 - accuracy: 0.83
Epoch 196/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.403
6 - accuracy: 0.8307
Epoch 197/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.403
3 - accuracy: 0.8300
Epoch 198/500
6030/6030 [=====] - 1s 149us/sample - loss: 0.403
6 - accuracy: 0.8320
Epoch 199/500
6030/6030 [=====] - 1s 161us/sample - loss: 0.403
4 - accuracy: 0.8312
Epoch 200/500
6030/6030 [=====] - 1s 158us/sample - loss: 0.403
1 - accuracy: 0.8313
Epoch 201/500
6030/6030 [=====] - 1s 159us/sample - loss: 0.403
1 - accuracy: 0.8307
Epoch 202/500
6030/6030 [=====] - 1s 165us/sample - loss: 0.403
```



```
5 - accuracy: 0.8303
Epoch 203/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.403
3 - accuracy: 0.8322
Epoch 204/500
6030/6030 [=====] - 1s 164us/sample - loss: 0.403
5 - accuracy: 0.8308
Epoch 205/500
6030/6030 [=====] - 1s 155us/sample - loss: 0.403
4 - accuracy: 0.8330
Epoch 206/500
6030/6030 [=====] - 1s 164us/sample - loss: 0.403
0 - accuracy: 0.8328
Epoch 207/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.402
7 - accuracy: 0.8299
Epoch 208/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.402
8 - accuracy: 0.8310
Epoch 209/500
6030/6030 [=====] - 1s 221us/sample - loss: 0.403
1 - accuracy: 0.8328
Epoch 210/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.402
5 - accuracy: 0.8318
Epoch 211/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.403
0 - accuracy: 0.8313
Epoch 212/500
6030/6030 [=====] - 1s 167us/sample - loss: 0.403
0 - accuracy: 0.8323
Epoch 213/500
6030/6030 [=====] - 1s 205us/sample - loss: 0.402
4 - accuracy: 0.8322
Epoch 214/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.402
2 - accuracy: 0.8335
Epoch 215/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.402
0 - accuracy: 0.8307
Epoch 216/500
6030/6030 [=====] - 1s 234us/sample - loss: 0.402
2 - accuracy: 0.8313
Epoch 217/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.401
9 - accuracy: 0.8318
Epoch 218/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.402
1 - accuracy: 0.8322
Epoch 219/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.401
8 - accuracy: 0.8320
Epoch 220/500
6030/6030 [=====] - 1s 161us/sample - loss: 0.401
8 - accuracy: 0.8310
Epoch 221/500
6030/6030 [=====] - 1s 150us/sample - loss: 0.401
4 - accuracy: 0.8307
Epoch 222/500
6030/6030 [=====] - 1s 143us/sample - loss: 0.401
6 - accuracy: 0.8310
```

Epoch 223/500  
6030/6030 [=====] - 1s 147us/sample - loss: 0.401  
2 - accuracy: 0.8337  
Epoch 224/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.401  
7 - accuracy: 0.8315  
Epoch 225/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.400  
9 - accuracy: 0.8327  
Epoch 226/500  
6030/6030 [=====] - 1s 157us/sample - loss: 0.401  
2 - accuracy: 0.8327  
Epoch 227/500  
6030/6030 [=====] - 1s 192us/sample - loss: 0.400  
8 - accuracy: 0.8323  
Epoch 228/500  
6030/6030 [=====] - 1s 185us/sample - loss: 0.400  
7 - accuracy: 0.8320  
Epoch 229/500  
6030/6030 [=====] - 1s 154us/sample - loss: 0.400  
7 - accuracy: 0.8337  
Epoch 230/500  
6030/6030 [=====] - 1s 163us/sample - loss: 0.400  
4 - accuracy: 0.8320  
Epoch 231/500  
6030/6030 [=====] - 1s 155us/sample - loss: 0.400  
3 - accuracy: 0.8330  
Epoch 232/500  
6030/6030 [=====] - 1s 157us/sample - loss: 0.400  
7 - accuracy: 0.8323  
Epoch 233/500  
6030/6030 [=====] - 1s 155us/sample - loss: 0.400  
2 - accuracy: 0.8330  
Epoch 234/500  
6030/6030 [=====] - 1s 150us/sample - loss: 0.400  
0 - accuracy: 0.8328  
Epoch 235/500  
6030/6030 [=====] - 1s 157us/sample - loss: 0.400  
2 - accuracy: 0.8340  
Epoch 236/500  
6030/6030 [=====] - 1s 148us/sample - loss: 0.399  
6 - accuracy: 0.8330  
Epoch 237/500  
6030/6030 [=====] - 1s 145us/sample - loss: 0.399  
8 - accuracy: 0.8340  
Epoch 238/500  
6030/6030 [=====] - 1s 146us/sample - loss: 0.399  
9 - accuracy: 0.8325  
Epoch 239/500  
6030/6030 [=====] - 1s 144us/sample - loss: 0.399  
5 - accuracy: 0.8352  
Epoch 240/500  
6030/6030 [=====] - 1s 151us/sample - loss: 0.399  
0 - accuracy: 0.8332  
Epoch 241/500  
6030/6030 [=====] - 1s 149us/sample - loss: 0.399  
9 - accuracy: 0.8337  
Epoch 242/500  
6030/6030 [=====] - 1s 168us/sample - loss: 0.399  
5 - accuracy: 0.8357  
Epoch 243/500

```
6030/6030 [=====] - 1s 233us/sample - loss: 0.399
6 - accuracy: 0.8337
Epoch 244/500
6030/6030 [=====] - 1s 244us/sample - loss: 0.399
0 - accuracy: 0.8338
Epoch 245/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.399
1 - accuracy: 0.8337
Epoch 246/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.399
0 - accuracy: 0.8335
Epoch 247/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.398
7 - accuracy: 0.8340
Epoch 248/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.398
9 - accuracy: 0.8350
Epoch 249/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.398
7 - accuracy: 0.8333
Epoch 250/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.398
5 - accuracy: 0.8342
Epoch 251/500
6030/6030 [=====] - 2s 274us/sample - loss: 0.398
6 - accuracy: 0.8342 - loss: 0.408
Epoch 252/500
6030/6030 [=====] - 1s 245us/sample - loss: 0.398
5 - accuracy: 0.8335
Epoch 253/500
6030/6030 [=====] - 1s 240us/sample - loss: 0.398
2 - accuracy: 0.8337
Epoch 254/500
6030/6030 [=====] - 2s 249us/sample - loss: 0.398
5 - accuracy: 0.8362
Epoch 255/500
6030/6030 [=====] - 2s 261us/sample - loss: 0.398
8 - accuracy: 0.8342
Epoch 256/500
6030/6030 [=====] - 2s 263us/sample - loss: 0.398
6 - accuracy: 0.8335
Epoch 257/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.398
2 - accuracy: 0.8352
Epoch 258/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.397
9 - accuracy: 0.8358
Epoch 259/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.397
8 - accuracy: 0.8350
Epoch 260/500
6030/6030 [=====] - 1s 161us/sample - loss: 0.397
9 - accuracy: 0.8355
Epoch 261/500
6030/6030 [=====] - 1s 160us/sample - loss: 0.397
8 - accuracy: 0.8342
Epoch 262/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.397
8 - accuracy: 0.8357
Epoch 263/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.397
```

```
8 - accuracy: 0.8340
Epoch 264/500
6030/6030 [=====] - 2s 254us/sample - loss: 0.397
5 - accuracy: 0.8340
Epoch 265/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.397
6 - accuracy: 0.8342
Epoch 266/500
6030/6030 [=====] - 1s 170us/sample - loss: 0.397
3 - accuracy: 0.8353
Epoch 267/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.397
5 - accuracy: 0.8332
Epoch 268/500
6030/6030 [=====] - 1s 164us/sample - loss: 0.397
4 - accuracy: 0.8347
Epoch 269/500
6030/6030 [=====] - 1s 162us/sample - loss: 0.397
1 - accuracy: 0.8343
Epoch 270/500
6030/6030 [=====] - 1s 160us/sample - loss: 0.397
4 - accuracy: 0.8338
Epoch 271/500
6030/6030 [=====] - 1s 159us/sample - loss: 0.397
5 - accuracy: 0.8350
Epoch 272/500
6030/6030 [=====] - 1s 165us/sample - loss: 0.397
5 - accuracy: 0.8350
Epoch 273/500
6030/6030 [=====] - 1s 193us/sample - loss: 0.397
0 - accuracy: 0.8350
Epoch 274/500
6030/6030 [=====] - 1s 163us/sample - loss: 0.397
1 - accuracy: 0.8352
Epoch 275/500
6030/6030 [=====] - 1s 154us/sample - loss: 0.397
0 - accuracy: 0.8368
Epoch 276/500
6030/6030 [=====] - 1s 154us/sample - loss: 0.396
4 - accuracy: 0.8360
Epoch 277/500
6030/6030 [=====] - 1s 161us/sample - loss: 0.397
1 - accuracy: 0.8345
Epoch 278/500
6030/6030 [=====] - 1s 165us/sample - loss: 0.396
9 - accuracy: 0.8363
Epoch 279/500
6030/6030 [=====] - 1s 146us/sample - loss: 0.396
7 - accuracy: 0.8357
Epoch 280/500
6030/6030 [=====] - 1s 149us/sample - loss: 0.396
7 - accuracy: 0.8355
Epoch 281/500
6030/6030 [=====] - 1s 177us/sample - loss: 0.396
8 - accuracy: 0.8347
Epoch 282/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.396
3 - accuracy: 0.8360
Epoch 283/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.396
5 - accuracy: 0.8350
```

Epoch 284/500  
6030/6030 [=====] - 1s 226us/sample - loss: 0.396  
8 - accuracy: 0.8357  
Epoch 285/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.396  
1 - accuracy: 0.8370  
Epoch 286/500  
6030/6030 [=====] - 1s 162us/sample - loss: 0.397  
0 - accuracy: 0.8353  
Epoch 287/500  
6030/6030 [=====] - 1s 158us/sample - loss: 0.396  
2 - accuracy: 0.8355  
Epoch 288/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.396  
3 - accuracy: 0.8350  
Epoch 289/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.396  
1 - accuracy: 0.8350  
Epoch 290/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.396  
6 - accuracy: 0.8348  
Epoch 291/500  
6030/6030 [=====] - 1s 166us/sample - loss: 0.396  
4 - accuracy: 0.8340  
Epoch 292/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.396  
1 - accuracy: 0.8353  
Epoch 293/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.396  
1 - accuracy: 0.8368  
Epoch 294/500  
6030/6030 [=====] - 1s 172us/sample - loss: 0.396  
9 - accuracy: 0.8352  
Epoch 295/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.395  
4 - accuracy: 0.8358  
Epoch 296/500  
6030/6030 [=====] - 1s 170us/sample - loss: 0.395  
7 - accuracy: 0.8362  
Epoch 297/500  
6030/6030 [=====] - 1s 167us/sample - loss: 0.396  
6 - accuracy: 0.8345  
Epoch 298/500  
6030/6030 [=====] - 1s 162us/sample - loss: 0.396  
0 - accuracy: 0.8350  
Epoch 299/500  
6030/6030 [=====] - 1s 166us/sample - loss: 0.396  
0 - accuracy: 0.8368  
Epoch 300/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.396  
3 - accuracy: 0.8330  
Epoch 301/500  
6030/6030 [=====] - 1s 173us/sample - loss: 0.396  
1 - accuracy: 0.8355  
Epoch 302/500  
6030/6030 [=====] - 1s 167us/sample - loss: 0.395  
9 - accuracy: 0.8342  
Epoch 303/500  
6030/6030 [=====] - 1s 219us/sample - loss: 0.395  
8 - accuracy: 0.8357  
Epoch 304/500

```
6030/6030 [=====] - 1s 181us/sample - loss: 0.395
7 - accuracy: 0.8348
Epoch 305/500
6030/6030 [=====] - 1s 214us/sample - loss: 0.395
9 - accuracy: 0.8345
Epoch 306/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.395
5 - accuracy: 0.8368
Epoch 307/500
6030/6030 [=====] - 1s 166us/sample - loss: 0.396
3 - accuracy: 0.8368
Epoch 308/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.395
5 - accuracy: 0.8386
Epoch 309/500
6030/6030 [=====] - 1s 195us/sample - loss: 0.395
3 - accuracy: 0.8362
Epoch 310/500
6030/6030 [=====] - 1s 197us/sample - loss: 0.395
8 - accuracy: 0.8350
Epoch 311/500
6030/6030 [=====] - 1s 212us/sample - loss: 0.396
1 - accuracy: 0.8360
Epoch 312/500
6030/6030 [=====] - 1s 155us/sample - loss: 0.395
5 - accuracy: 0.8345
Epoch 313/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.395
6 - accuracy: 0.8365
Epoch 314/500
6030/6030 [=====] - 2s 319us/sample - loss: 0.395
2 - accuracy: 0.8363
Epoch 315/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.396
0 - accuracy: 0.8348
Epoch 316/500
6030/6030 [=====] - 1s 148us/sample - loss: 0.395
5 - accuracy: 0.8363
Epoch 317/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.395
3 - accuracy: 0.8362
Epoch 318/500
6030/6030 [=====] - 1s 152us/sample - loss: 0.394
5 - accuracy: 0.8368
Epoch 319/500
6030/6030 [=====] - 1s 152us/sample - loss: 0.395
7 - accuracy: 0.8343
Epoch 320/500
6030/6030 [=====] - 1s 147us/sample - loss: 0.395
1 - accuracy: 0.8355
Epoch 321/500
6030/6030 [=====] - 1s 201us/sample - loss: 0.395
5 - accuracy: 0.8357
Epoch 322/500
6030/6030 [=====] - 1s 168us/sample - loss: 0.395
7 - accuracy: 0.8347
Epoch 323/500
6030/6030 [=====] - 1s 150us/sample - loss: 0.395
5 - accuracy: 0.8358
Epoch 324/500
6030/6030 [=====] - 1s 150us/sample - loss: 0.395
```

```
5 - accuracy: 0.8347
Epoch 325/500
6030/6030 [=====] - 1s 145us/sample - loss: 0.395
8 - accuracy: 0.8352
Epoch 326/500
6030/6030 [=====] - 1s 150us/sample - loss: 0.395
3 - accuracy: 0.8365
Epoch 327/500
6030/6030 [=====] - 1s 151us/sample - loss: 0.395
5 - accuracy: 0.8337
Epoch 328/500
6030/6030 [=====] - 1s 152us/sample - loss: 0.395
6 - accuracy: 0.8358
Epoch 329/500
6030/6030 [=====] - 1s 149us/sample - loss: 0.395
4 - accuracy: 0.8357
Epoch 330/500
6030/6030 [=====] - 1s 149us/sample - loss: 0.396
1 - accuracy: 0.8358
Epoch 331/500
6030/6030 [=====] - 1s 145us/sample - loss: 0.395
4 - accuracy: 0.8362
Epoch 332/500
6030/6030 [=====] - 1s 148us/sample - loss: 0.395
4 - accuracy: 0.8357
Epoch 333/500
6030/6030 [=====] - 1s 148us/sample - loss: 0.395
2 - accuracy: 0.8358
Epoch 334/500
6030/6030 [=====] - 1s 152us/sample - loss: 0.394
9 - accuracy: 0.8355
Epoch 335/500
6030/6030 [=====] - 1s 153us/sample - loss: 0.395
4 - accuracy: 0.8373
Epoch 336/500
6030/6030 [=====] - 1s 161us/sample - loss: 0.395
2 - accuracy: 0.8348
Epoch 337/500
6030/6030 [=====] - 1s 154us/sample - loss: 0.395
3 - accuracy: 0.8370
Epoch 338/500
6030/6030 [=====] - 1s 166us/sample - loss: 0.395
0 - accuracy: 0.8362
Epoch 339/500
6030/6030 [=====] - 1s 182us/sample - loss: 0.395
1 - accuracy: 0.8371
Epoch 340/500
6030/6030 [=====] - 1s 190us/sample - loss: 0.395
2 - accuracy: 0.8365
Epoch 341/500
6030/6030 [=====] - 1s 199us/sample - loss: 0.395
2 - accuracy: 0.8363
Epoch 342/500
6030/6030 [=====] - 1s 191us/sample - loss: 0.395
1 - accuracy: 0.8355
Epoch 343/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.395
2 - accuracy: 0.8365
Epoch 344/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.394
6 - accuracy: 0.8373
```

Epoch 345/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.395  
1 - accuracy: 0.8362  
Epoch 346/500  
6030/6030 [=====] - 1s 158us/sample - loss: 0.394  
7 - accuracy: 0.8360  
Epoch 347/500  
6030/6030 [=====] - 1s 157us/sample - loss: 0.395  
2 - accuracy: 0.8363  
Epoch 348/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.394  
9 - accuracy: 0.8368  
Epoch 349/500  
6030/6030 [=====] - 1s 239us/sample - loss: 0.395  
1 - accuracy: 0.8373 - loss: 0.3980 - accuracy: - ETA: 0s - loss: 0.3971  
- accuracy:  
Epoch 350/500  
6030/6030 [=====] - 1s 225us/sample - loss: 0.395  
0 - accuracy: 0.8368  
Epoch 351/500  
6030/6030 [=====] - 1s 215us/sample - loss: 0.394  
8 - accuracy: 0.8358  
Epoch 352/500  
6030/6030 [=====] - 2s 279us/sample - loss: 0.395  
1 - accuracy: 0.8363 - loss: 0.3937 - accuracy:  
Epoch 353/500  
6030/6030 [=====] - 1s 239us/sample - loss: 0.395  
1 - accuracy: 0.8378  
Epoch 354/500  
6030/6030 [=====] - 1s 219us/sample - loss: 0.394  
9 - accuracy: 0.8367  
Epoch 355/500  
6030/6030 [=====] - 1s 204us/sample - loss: 0.395  
1 - accuracy: 0.8375  
Epoch 356/500  
6030/6030 [=====] - 2s 271us/sample - loss: 0.395  
3 - accuracy: 0.8358  
Epoch 357/500  
6030/6030 [=====] - 1s 209us/sample - loss: 0.395  
0 - accuracy: 0.8347  
Epoch 358/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.395  
4 - accuracy: 0.8370  
Epoch 359/500  
6030/6030 [=====] - 1s 190us/sample - loss: 0.395  
4 - accuracy: 0.8358  
Epoch 360/500  
6030/6030 [=====] - 1s 176us/sample - loss: 0.395  
2 - accuracy: 0.8373  
Epoch 361/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.395  
2 - accuracy: 0.8360  
Epoch 362/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.394  
9 - accuracy: 0.8373  
Epoch 363/500  
6030/6030 [=====] - 1s 208us/sample - loss: 0.394  
8 - accuracy: 0.8362  
Epoch 364/500  
6030/6030 [=====] - 1s 145us/sample - loss: 0.395  
3 - accuracy: 0.8368 - los



Epoch 365/500  
6030/6030 [=====] - 1s 147us/sample - loss: 0.395  
2 - accuracy: 0.8360  
Epoch 366/500  
6030/6030 [=====] - 1s 146us/sample - loss: 0.394  
7 - accuracy: 0.8362  
Epoch 367/500  
6030/6030 [=====] - 1s 162us/sample - loss: 0.394  
8 - accuracy: 0.8380  
Epoch 368/500  
6030/6030 [=====] - 1s 163us/sample - loss: 0.395  
0 - accuracy: 0.8365  
Epoch 369/500  
6030/6030 [=====] - 1s 174us/sample - loss: 0.394  
8 - accuracy: 0.8363  
Epoch 370/500  
6030/6030 [=====] - 1s 175us/sample - loss: 0.395  
4 - accuracy: 0.8373  
Epoch 371/500  
6030/6030 [=====] - 1s 148us/sample - loss: 0.394  
9 - accuracy: 0.8355  
Epoch 372/500  
6030/6030 [=====] - 1s 146us/sample - loss: 0.394  
6 - accuracy: 0.8370  
Epoch 373/500  
6030/6030 [=====] - 1s 151us/sample - loss: 0.395  
3 - accuracy: 0.8363  
Epoch 374/500  
6030/6030 [=====] - 1s 147us/sample - loss: 0.394  
9 - accuracy: 0.8363  
Epoch 375/500  
6030/6030 [=====] - 1s 148us/sample - loss: 0.395  
2 - accuracy: 0.8371  
Epoch 376/500  
6030/6030 [=====] - 1s 178us/sample - loss: 0.395  
0 - accuracy: 0.8375  
Epoch 377/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.394  
9 - accuracy: 0.8375  
Epoch 378/500  
6030/6030 [=====] - 1s 180us/sample - loss: 0.395  
1 - accuracy: 0.8353  
Epoch 379/500  
6030/6030 [=====] - 1s 184us/sample - loss: 0.394  
9 - accuracy: 0.8383  
Epoch 380/500  
6030/6030 [=====] - 1s 165us/sample - loss: 0.394  
6 - accuracy: 0.8373  
Epoch 381/500  
6030/6030 [=====] - 1s 164us/sample - loss: 0.395  
1 - accuracy: 0.8386  
Epoch 382/500  
6030/6030 [=====] - 1s 161us/sample - loss: 0.395  
1 - accuracy: 0.8395  
Epoch 383/500  
6030/6030 [=====] - 1s 171us/sample - loss: 0.394  
8 - accuracy: 0.8365  
Epoch 384/500  
6030/6030 [=====] - 1s 153us/sample - loss: 0.394  
6 - accuracy: 0.8376  
Epoch 385/500

```
6030/6030 [=====] - 1s 154us/sample - loss: 0.395
3 - accuracy: 0.8345
Epoch 386/500
6030/6030 [=====] - 1s 145us/sample - loss: 0.394
9 - accuracy: 0.8380
Epoch 387/500
6030/6030 [=====] - 1s 147us/sample - loss: 0.395
2 - accuracy: 0.8375
Epoch 388/500
6030/6030 [=====] - 1s 155us/sample - loss: 0.394
8 - accuracy: 0.8376
Epoch 389/500
6030/6030 [=====] - 1s 158us/sample - loss: 0.394
9 - accuracy: 0.8371
Epoch 390/500
6030/6030 [=====] - 1s 162us/sample - loss: 0.394
5 - accuracy: 0.8360
Epoch 391/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.394
7 - accuracy: 0.8373
Epoch 392/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.394
4 - accuracy: 0.8365
Epoch 393/500
6030/6030 [=====] - 1s 196us/sample - loss: 0.395
0 - accuracy: 0.8368
Epoch 394/500
6030/6030 [=====] - 1s 187us/sample - loss: 0.394
8 - accuracy: 0.8378
Epoch 395/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.394
5 - accuracy: 0.8362
Epoch 396/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.395
1 - accuracy: 0.8358
Epoch 397/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.395
0 - accuracy: 0.8371
Epoch 398/500
6030/6030 [=====] - 1s 183us/sample - loss: 0.394
9 - accuracy: 0.8352
Epoch 399/500
6030/6030 [=====] - 1s 164us/sample - loss: 0.394
9 - accuracy: 0.8375
Epoch 400/500
6030/6030 [=====] - 1s 222us/sample - loss: 0.394
8 - accuracy: 0.8380
Epoch 401/500
6030/6030 [=====] - 1s 218us/sample - loss: 0.394
8 - accuracy: 0.8371
Epoch 402/500
6030/6030 [=====] - 1s 236us/sample - loss: 0.395
0 - accuracy: 0.8373
Epoch 403/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.394
8 - accuracy: 0.8375
Epoch 404/500
6030/6030 [=====] - 1s 176us/sample - loss: 0.394
8 - accuracy: 0.8370
Epoch 405/500
6030/6030 [=====] - 1s 153us/sample - loss: 0.394
```

```
5 - accuracy: 0.8375
Epoch 406/500
6030/6030 [=====] - 1s 172us/sample - loss: 0.395
0 - accuracy: 0.8390
Epoch 407/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.394
0 - accuracy: 0.8393
Epoch 408/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.395
3 - accuracy: 0.8375
Epoch 409/500
6030/6030 [=====] - 1s 226us/sample - loss: 0.394
6 - accuracy: 0.8358
Epoch 410/500
6030/6030 [=====] - 2s 321us/sample - loss: 0.394
7 - accuracy: 0.8365
Epoch 411/500
6030/6030 [=====] - 2s 352us/sample - loss: 0.394
7 - accuracy: 0.8373
Epoch 412/500
6030/6030 [=====] - 2s 289us/sample - loss: 0.394
8 - accuracy: 0.8378
Epoch 413/500
6030/6030 [=====] - 2s 261us/sample - loss: 0.395
0 - accuracy: 0.8367
Epoch 414/500
6030/6030 [=====] - 1s 200us/sample - loss: 0.394
5 - accuracy: 0.8381
Epoch 415/500
6030/6030 [=====] - 2s 269us/sample - loss: 0.394
5 - accuracy: 0.8370
Epoch 416/500
6030/6030 [=====] - 4s 734us/sample - loss: 0.394
3 - accuracy: 0.8355
Epoch 417/500
6030/6030 [=====] - 3s 431us/sample - loss: 0.395
2 - accuracy: 0.8362
Epoch 418/500
6030/6030 [=====] - 2s 272us/sample - loss: 0.395
1 - accuracy: 0.8375
Epoch 419/500
6030/6030 [=====] - 2s 260us/sample - loss: 0.394
6 - accuracy: 0.8378
Epoch 420/500
6030/6030 [=====] - 2s 272us/sample - loss: 0.394
8 - accuracy: 0.8371
Epoch 421/500
6030/6030 [=====] - 1s 213us/sample - loss: 0.394
7 - accuracy: 0.8368
Epoch 422/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.394
7 - accuracy: 0.8362
Epoch 423/500
6030/6030 [=====] - 1s 194us/sample - loss: 0.394
3 - accuracy: 0.8373
Epoch 424/500
6030/6030 [=====] - 1s 163us/sample - loss: 0.394
7 - accuracy: 0.8371
Epoch 425/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.395
0 - accuracy: 0.8373
```

Epoch 426/500  
6030/6030 [=====] - 1s 169us/sample - loss: 0.394  
2 - accuracy: 0.8385  
Epoch 427/500  
6030/6030 [=====] - 1s 159us/sample - loss: 0.394  
5 - accuracy: 0.8353  
Epoch 428/500  
6030/6030 [=====] - 1s 149us/sample - loss: 0.394  
7 - accuracy: 0.8371  
Epoch 429/500  
6030/6030 [=====] - 1s 182us/sample - loss: 0.394  
6 - accuracy: 0.8371  
Epoch 430/500  
6030/6030 [=====] - 1s 216us/sample - loss: 0.394  
6 - accuracy: 0.8380  
Epoch 431/500  
6030/6030 [=====] - 2s 276us/sample - loss: 0.394  
5 - accuracy: 0.8380  
Epoch 432/500  
6030/6030 [=====] - 1s 239us/sample - loss: 0.394  
6 - accuracy: 0.8376  
Epoch 433/500  
6030/6030 [=====] - 1s 215us/sample - loss: 0.395  
3 - accuracy: 0.8386  
Epoch 434/500  
6030/6030 [=====] - 1s 193us/sample - loss: 0.395  
1 - accuracy: 0.8360  
Epoch 435/500  
6030/6030 [=====] - 1s 157us/sample - loss: 0.394  
2 - accuracy: 0.8355  
Epoch 436/500  
6030/6030 [=====] - 1s 194us/sample - loss: 0.395  
1 - accuracy: 0.8381  
Epoch 437/500  
6030/6030 [=====] - 1s 212us/sample - loss: 0.394  
3 - accuracy: 0.8365  
Epoch 438/500  
6030/6030 [=====] - 1s 247us/sample - loss: 0.394  
2 - accuracy: 0.8391  
Epoch 439/500  
6030/6030 [=====] - 1s 219us/sample - loss: 0.394  
5 - accuracy: 0.8370  
Epoch 440/500  
6030/6030 [=====] - 1s 203us/sample - loss: 0.394  
7 - accuracy: 0.8393  
Epoch 441/500  
6030/6030 [=====] - 1s 200us/sample - loss: 0.394  
5 - accuracy: 0.8368  
Epoch 442/500  
6030/6030 [=====] - 1s 222us/sample - loss: 0.394  
9 - accuracy: 0.8385  
Epoch 443/500  
6030/6030 [=====] - 1s 226us/sample - loss: 0.394  
2 - accuracy: 0.8383  
Epoch 444/500  
6030/6030 [=====] - 1s 206us/sample - loss: 0.395  
2 - accuracy: 0.8355  
Epoch 445/500  
6030/6030 [=====] - 1s 191us/sample - loss: 0.394  
6 - accuracy: 0.8363  
Epoch 446/500

```
6030/6030 [=====] - 2s 324us/sample - loss: 0.394
2 - accuracy: 0.8368
Epoch 447/500
6030/6030 [=====] - 2s 410us/sample - loss: 0.394
5 - accuracy: 0.8370
Epoch 448/500
6030/6030 [=====] - 1s 245us/sample - loss: 0.395
0 - accuracy: 0.8373
Epoch 449/500
6030/6030 [=====] - 1s 202us/sample - loss: 0.394
8 - accuracy: 0.8367
Epoch 450/500
6030/6030 [=====] - 1s 217us/sample - loss: 0.394
5 - accuracy: 0.8368 - loss: 0.397
Epoch 451/500
6030/6030 [=====] - 1s 219us/sample - loss: 0.394
4 - accuracy: 0.8348
Epoch 452/500
6030/6030 [=====] - 1s 216us/sample - loss: 0.395
0 - accuracy: 0.8352
Epoch 453/500
6030/6030 [=====] - 1s 203us/sample - loss: 0.394
6 - accuracy: 0.8373
Epoch 454/500
6030/6030 [=====] - 1s 192us/sample - loss: 0.394
8 - accuracy: 0.8383
Epoch 455/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.394
5 - accuracy: 0.8378
Epoch 456/500
6030/6030 [=====] - 1s 146us/sample - loss: 0.394
4 - accuracy: 0.8357
Epoch 457/500
6030/6030 [=====] - 1s 174us/sample - loss: 0.394
2 - accuracy: 0.8367
Epoch 458/500
6030/6030 [=====] - 1s 164us/sample - loss: 0.394
5 - accuracy: 0.8386
Epoch 459/500
6030/6030 [=====] - 1s 159us/sample - loss: 0.394
5 - accuracy: 0.8381
Epoch 460/500
6030/6030 [=====] - 1s 185us/sample - loss: 0.394
2 - accuracy: 0.8357
Epoch 461/500
6030/6030 [=====] - 1s 158us/sample - loss: 0.394
2 - accuracy: 0.8371
Epoch 462/500
6030/6030 [=====] - 1s 173us/sample - loss: 0.394
8 - accuracy: 0.8375
Epoch 463/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.394
5 - accuracy: 0.8363
Epoch 464/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.394
5 - accuracy: 0.8388
Epoch 465/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.394
8 - accuracy: 0.8363
Epoch 466/500
6030/6030 [=====] - 1s 198us/sample - loss: 0.394
```

```
6 - accuracy: 0.8355
Epoch 467/500
6030/6030 [=====] - 1s 186us/sample - loss: 0.394
9 - accuracy: 0.8375
Epoch 468/500
6030/6030 [=====] - 1s 179us/sample - loss: 0.394
6 - accuracy: 0.8365
Epoch 469/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.394
5 - accuracy: 0.8370
Epoch 470/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.394
0 - accuracy: 0.8385
Epoch 471/500
6030/6030 [=====] - 1s 206us/sample - loss: 0.394
7 - accuracy: 0.8357
Epoch 472/500
6030/6030 [=====] - 1s 211us/sample - loss: 0.394
7 - accuracy: 0.8355
Epoch 473/500
6030/6030 [=====] - 1s 178us/sample - loss: 0.394
7 - accuracy: 0.8381
Epoch 474/500
6030/6030 [=====] - 1s 210us/sample - loss: 0.395
0 - accuracy: 0.8378
Epoch 475/500
6030/6030 [=====] - 1s 180us/sample - loss: 0.394
4 - accuracy: 0.8376
Epoch 476/500
6030/6030 [=====] - 1s 184us/sample - loss: 0.394
6 - accuracy: 0.8360
Epoch 477/500
6030/6030 [=====] - 1s 181us/sample - loss: 0.394
6 - accuracy: 0.8381
Epoch 478/500
6030/6030 [=====] - 1s 165us/sample - loss: 0.394
4 - accuracy: 0.8375
Epoch 479/500
6030/6030 [=====] - 1s 160us/sample - loss: 0.394
3 - accuracy: 0.8378
Epoch 480/500
6030/6030 [=====] - 1s 175us/sample - loss: 0.394
4 - accuracy: 0.8373
Epoch 481/500
1216/6030 [=====>.....] - ETA: 0s - loss: 0.3880 - accu
racy: 0.8388
```

**The best parameters is obtained using these, best epochs = 500, rms prop comes out to be the best optimiser, along with the batch size of 32**