Case Study 7 Report:

Loss Minimizing Classifier

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Abstract

The team has been provided a dataset from an anonymous source. The goal is to create a model that predicts the classroom accurately to minimize monetary losses.

1. Introduction

1.1 Business Understanding

A client provided the team with a dataset from an anonymous source for the team to create a model to apply to their business. The objective for this study is to minimize the monetary losses of a company by engineering highly accurate algorithms.

The monetary losses is as follows:

- Class 0 misclassification = $25
- Class 1 misclassification = $100

As detailed above, the client can lose a significant amount each time a wrong classification is predicted and can sum up to major monetary losses.

1.2 Data Meaning Type

To create an algorithm that highly predicts the correct class, an anonymous source provided a large dataset to the team. The dataset comprises 160,000 records, 50 independent features and 1 classifying feature shown in Figure 1.2.a.

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 160000 entries, 0 to 159999
Data columns (total 51 columns):
 #   Column  Non-Null Count   Dtype
---  ------  --------------   -----
 0   x0      159974 non-null  float64
 1   x1      159975 non-null  float64
 2   x2      159962 non-null  float64
 3   x3      159963 non-null  float64
 4   x4      159974 non-null  float64
 5   x5      159963 non-null  float64
 6   x6      159974 non-null  float64
 7   x7      159973 non-null  float64
 8   x8      159979 non-null  float64
 9   x9      159970 non-null  float64
 10  x10     159957 non-null  float64
 11  x11     159970 non-null  float64
 12  x12     159964 non-null  float64
 13  x13     159969 non-null  float64
 14  x14     159966 non-null  float64
 15  x15     159965 non-null  float64
 16  x16     159974 non-null  float64
 17  x17     159973 non-null  float64
 18  x18     159960 non-null  float64
 19  x19     159965 non-null  float64
 20  x20     159962 non-null  float64
 21  x21     159971 non-null  float64
 22  x22     159973 non-null  float64
 23  x23     159953 non-null  float64
 24  x24     159972 non-null  object
 25  x25     159978 non-null  float64
 26  x26     159964 non-null  float64
 27  x27     159970 non-null  float64
 28  x28     159965 non-null  float64
 29  x29     159970 non-null  object
 30  x30     159970 non-null  object
 31  x31     159961 non-null  float64
 32  x32     159969 non-null  object
 33  x33     159959 non-null  float64
 34  x34     159959 non-null  float64
 35  x35     159970 non-null  float64
 36  x36     159973 non-null  float64
 37  x37     159977 non-null  object
 38  x38     159969 non-null  float64
 39  x39     159977 non-null  float64
 40  x40     159964 non-null  float64
 41  x41     159960 non-null  float64
 42  x42     159974 non-null  float64
 43  x43     159963 non-null  float64
 44  x44     159960 non-null  float64
 45  x45     159971 non-null  float64
 46  x46     159969 non-null  float64
 47  x47     159963 non-null  float64
 48  x48     159968 non-null  float64
 49  x49     159968 non-null  float64
 50  y       160000 non-null  int64
dtypes: float64(45), int64(1), object(5)
```

Figure 1.2.a- Feature Descriptions

Glancing at the features, the team saw that most of the features were numeric with the exception of five features (x24, x29, x30, x32 and x37). These features may require more attention and will be analyzed later.

2. Methods

2.1 Data Preprocessing

To prepare the data for analyzing, the team first looked at the five aforementioned non-numeric features. The fields contained the following data:

- x24 - Continent Names
- x29 - Months
- x30 - Days
- x32 - Unknown rate
- x37 - Unknown type of monetary value

For x29, the team noted that some of the month names were not uniformed so these were updated. Then, the days for x30 were changed to abbreviations. Next, the x32 rate was transformed by removing the percentage and changing the value type to float64. Lastly, x37's "$" was removed and changed to the value type of float64.

Next, the team checked the dataset for missing values and found that all the columns had less than 3% of missing values each as shown in Figure 2.1a. There were many options, but the team chose to fill columns x24, x29 and x30 missing values with "unknown".

	column_name	percent_missing
y	y	0.000000
x8	x8	0.013125
x25	x25	0.013750
x37	x37	0.014375
x39	x39	0.014375
x1	x1	0.015625
x0	x0	0.016250
x16	x16	0.016250
x42	x42	0.016250
x4	x4	0.016250
x6	x6	0.016250
x7	x7	0.016875
x22	x22	0.016875
x36	x36	0.016875
x17	x17	0.016875
x24	x24	0.017500
x21	x21	0.018125
x26	x26	0.022500
x12	x12	0.022500
x3	x3	0.023125
x5	x5	0.023125
x47	x47	0.023125
x43	x43	0.023125
x2	x2	0.023750
x20	x20	0.023750
x31	x31	0.024375
x41	x41	0.025000
x18	x18	0.025000
x44	x44	0.025000
x33	x33	0.025625
x34	x34	0.025625
x10	x10	0.026875
x23	x23	0.029375
x45	x45	0.018125
x30	x30	0.018750
x29	x29	0.018750
x27	x27	0.018750
x9	x9	0.018750
x11	x11	0.018750
x35	x35	0.018750
x32	x32	0.019375
x46	x46	0.019375
x13	x13	0.019375
x38	x38	0.019375
x48	x48	0.020000
x49	x49	0.020000
x14	x14	0.021250
x19	x19	0.021875
x15	x15	0.021875
x28	x28	0.021875
x40	x40	0.022500

Figure 2.1.a- Missing Data

Using one hot encoding, the team transformed the categorical variables (x24, x29 and x30) in the dataset to numeric values to improve the prediction accuracy. Then, the numeric features and newly transformed categorical features were concatenated together. This made the dataset uniformed by only utilizing number values. The dataset was ready for an exploratory data analysis at this point.

2.2 Exploratory Data Analysis

Starting the exploratory data analysis, the team saw that class 0 (95,830 records) and class 1 (64,197 records) had a 30,000 record difference as seen in Figure 2.2.a and 2.2.b. This disparity could cause complications in the accuracy of the model, therefore the team chose to downsample the class 0 to the size of class 1.

```
0.0    95803
1.0    64197
Name: y, dtype: int64
```

Figure 2.2.a- Class Breakdown

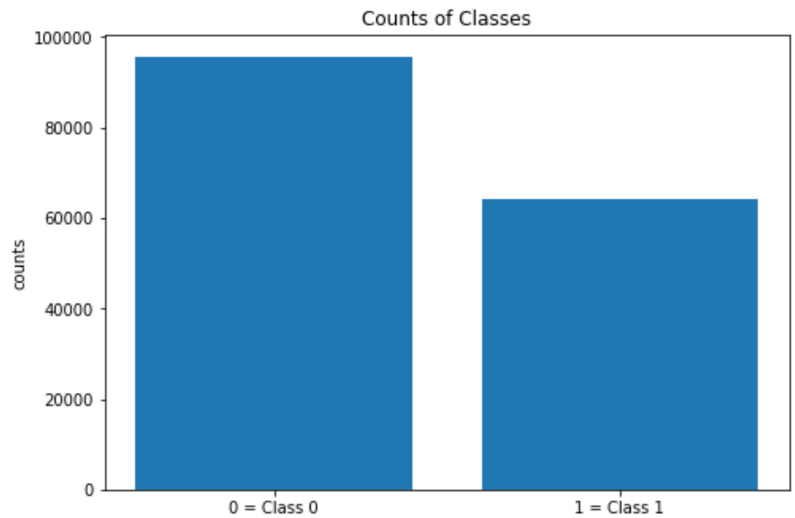


Figure 2.2.b- Class Bar Graph

After downsampling class 1, both class 0 and class 1 had 64,197 records each within the dataset as shown in Figure 2.2.c and Figure 2.2.d.

```
0.0    64197
1.0    64197
Name: y, dtype: int64
```

Figure 2.2.c- Class Breakdown After Downsampling

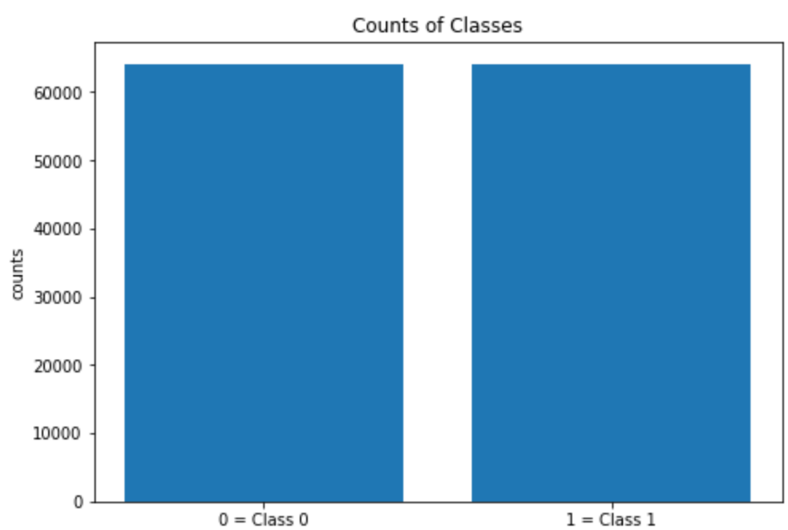


Figure 2.2.d- Class Bar Graph After Downsampling

Lastly, the team did a 67/33 split to randomly divide the dataset into train and test subsets using the train_test_split function from the sklearn model_selection package. The model is ready to run.

2.3 Models

2.3.1 Model 1: Random Forest

For the team's first model, they decided to utilize a random forest model to better accommodate the categorical and numerical data. After choosing the learning method, the team decided to further automate the model building process with a random search. The random search was chosen as it is known to give improved results from a grid search. The team selected a wide range of parameters for the search to test which included: n_estimators, criterion, min_samples_split, and max_features. The selected parameters were given 3-5 options and all unmentioned parameters were kept at the default setting. Thus, the model was set to run. The search was completed in around 2 hours from there we learned the parameters of the chosen best random forest model. The parameters of it contained: n_estimators = 100, criterion = entropy, min_samples_split = 5, and max_features = sqrt. Using these parameters the team continued on to predicting. The predictions were run using the designated best model of the grid search; this model did perform well on the data however the team wished to continue running further tests.

2.3.2 Model 2: Dense Neural Network

For the second model, the team decided to go in a different direction from the initial attempt and thus utilized a neural networks algorithm, as the data contains a mixture of categorical and numerical information, and a grid search. To build the model the team started with a model containing 3 layers, the layers consisted of the activation methods tanh, relu, and linear. The optimizer was set to Adam, and most other parameters were left in the default state. The team decided to feature the parameters of batch_size, nb_epoch, and unit in the grid search. Then, the GridSearchCV function was setup with the above and a cv set to 10. After this the fit was run and accuracies stayed at around 50% with a range up and down of 10%. This is less than ideal and the best model achieved was only 65% while using batch_size = 20, nb_epoch = 200, and unit = 15. Because of this model being less than satisfactory the team decided to continue on with the random forest model.

3. Results

3.1 Best Model

3.1.1 Random Forest

As stated in the previous section, the model did perform well on the test data. The accuracy gained is very good however the ensuing classification report did cause some concern. The team has taken this consistency to be a result of the previous downsampling combined with the randomized train/test split. The team decided not to change the random state for a different report as that would compromise the integrity of the results. As the model is reported we have a very balanced model that appears to predict evenly with great accuracy. This is supported by the accompanying confusion matrix. That said, according to the overall goal of this paper the team has produced a model that will limit monetary loss for the company to $202,720.

	precision	recall	f1-score	support
class 0	0.92	0.92	0.92	21336
class 1	0.92	0.92	0.92	21035
accuracy			0.92	42371
macro avg	0.92	0.92	0.92	42371
weighted avg	0.92	0.92	0.92	42371

Figure 3.1.1.a-The model's classification Report

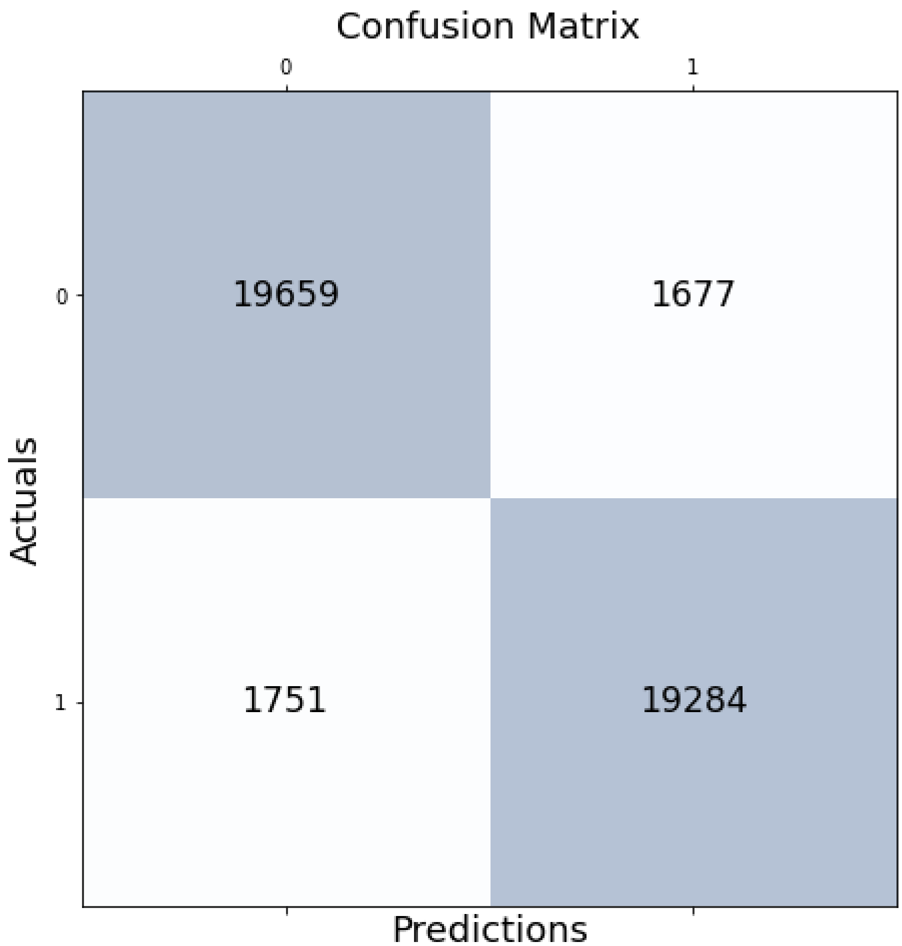


Figure 3.1.1.b-The model's confusion matrix

4. Conclusion

The team was able to classify the records as class 0 or 1 by utilizing the given records and processing them through a variety of random forest models. The last model reached an accuracy of 92% and a class 0/1 precision of 92%. Thus, the team believes that as of now this is the best method for an automated classifier. At this time, the team does not believe that it can further improve the model with more time.

5. Code

MSDS7333 (/github/Alexy-Mor/MSDS7333/tree/main)
/ CaseStudy7 (/github/Alexy-Mor/MSDS7333/tree/main/CaseStudy7)

In [ ]:

```
#import libraries
from __future__ import print_function
import pandas as pd
import numpy as np
import tensorflow as tf
import cv2
from tensorflow.python import keras
from tensorflow.python.keras.utils.np_utils import to_categorical
import matplotlib.pyplot as plt
import keras
from keras.models import Sequential
from tensorflow.keras import layers
from keras.layers import Dense, Dropout, Activation, Flatten
from keras.layers import Conv2D, MaxPooling2D
from keras import backend as K
from keras.wrappers.scikit_learn import KerasClassifier
from sklearn.preprocessing import StandardScaler
from sklearn.preprocessing import OneHotEncoder
from sklearn import metrics
from sklearn.model_selection import RandomizedSearchCV, train_test_split, Gr
from sklearn.ensemble import RandomForestClassifier
from sklearn.metrics import classification_report
from sklearn.metrics import PrecisionRecallDisplay
```

In [ ]:

```
#Mount drive
from google.colab import drive
drive.mount('/content/drive/')
```

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

In [ ]:

```
#Load up data and show.
 df = pd.read_csv('/content/drive/MyDrive/CS7-Final/final_project(5).csv')
 df.head()
```

Out[ ]:

	x0	x1	x2	x3	x4	x5	x6	x7	
0	-0.166563	-3.961588	4.621113	2.481908	-1.800135	0.804684	6.718751	-14.789997	-1.(
1	-0.149894	-0.585676	27.839856	4.152333	6.426802	-2.426943	40.477058	-6.725709	0.8
2	-0.321707	-1.429819	12.251561	6.586874	-5.304647	-11.311090	17.812850	11.060572	5.:
3	-0.245594	5.076677	-24.149632	3.637307	6.505811	2.290224	-35.111751	-18.913592	-0.:
4	-0.273366	0.306326	-11.352593	1.676758	2.928441	-0.616824	-16.505817	27.532281	1.

5 rows × 51 columns

Random forest and Neural network

In [ ]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 160000 entries, 0 to 159999
Data columns (total 51 columns):
 #   Column  Non-Null Count   Dtype  
---  ------  --------------   -----  
 0   x0      159974 non-null  float64
 1   x1      159975 non-null  float64
 2   x2      159962 non-null  float64
 3   x3      159963 non-null  float64
 4   x4      159974 non-null  float64
 5   x5      159963 non-null  float64
 6   x6      159974 non-null  float64
 7   x7      159973 non-null  float64
 8   x8      159979 non-null  float64
 9   x9      159970 non-null  float64
 10  x10     159957 non-null  float64
 11  x11     159970 non-null  float64
 12  x12     159964 non-null  float64
 13  x13     159969 non-null  float64
 14  x14     159966 non-null  float64
 15  x15     159965 non-null  float64
 16  x16     159974 non-null  float64
 17  x17     159973 non-null  float64
 18  x18     159960 non-null  float64
 19  x19     159965 non-null  float64
 20  x20     159962 non-null  float64
 21  x21     159971 non-null  float64
 22  x22     159973 non-null  float64
 23  x23     159953 non-null  float64
 24  x24     159972 non-null  object 
 25  x25     159978 non-null  float64
 26  x26     159964 non-null  float64
 27  x27     159970 non-null  float64
 28  x28     159965 non-null  float64
 29  x29     159970 non-null  object 
 30  x30     159970 non-null  object 
 31  x31     159961 non-null  float64
 32  x32     159969 non-null  object 
 33  x33     159959 non-null  float64
 34  x34     159959 non-null  float64
 35  x35     159970 non-null  float64
 36  x36     159973 non-null  float64
 37  x37     159977 non-null  object 
 38  x38     159969 non-null  float64
 39  x39     159977 non-null  float64
 40  x40     159964 non-null  float64
 41  x41     159960 non-null  float64
 42  x42     159974 non-null  float64
 43  x43     159963 non-null  float64
 44  x44     159960 non-null  float64
 45  x45     159971 non-null  float64
 46  x46     159969 non-null  float64
 47  x47     159963 non-null  float64
 48  x48     159968 non-null  float64
 49  x49     159968 non-null  float64
 50  y       160000 non-null  int64  
```

```
dtypes: float64(45), int64(1), object(5)
memory usage: 62.3+ MB
```

In [ ]:

```
df['x24'].value_counts()
```

Out[ ]:

```
asia       138965
euorpe      16538
america      4469
Name: x24, dtype: int64
```

In [ ]:

```
df['x29'].value_counts()
```

Out[ ]:

```
July       45569
Jun        41329
Aug        29406
May        21939
sept.      10819
Apr         6761
Oct         2407
Mar         1231
Nov          337
Feb          140
Dev           23
January        9
Name: x29, dtype: int64
```

In [ ]:

```
df['x29'] = df['x29'].replace(['July'], 'Jul')
df['x29'] = df['x29'].replace(['sept.'], 'Sep')
df['x29'] = df['x29'].replace(['Dev'], 'Dec')
df['x29'] = df['x29'].replace(['January'], 'Jan')
```

In [ ]:

```
df['x30'].value_counts()
```

Out[ ]:

```
wednesday    101535
thurday       29429
tuesday       27954
friday          564
monday          488
Name: x30, dtype: int64
```

In [ ]:

```
df['x30'] = df['x30'].replace(['wednesday'], 'wed')
df['x30'] = df['x30'].replace(['thurday'], 'thu')
df['x30'] = df['x30'].replace(['tuesday'], 'tue')
df['x30'] = df['x30'].replace(['friday'], 'fri')
df['x30'] = df['x30'].replace(['monday'], 'mon')
```

In [ ]:
```
df['x32'].value_counts()
```

Out[ ]:
```
0.01%     40767
-0.01%    34094
0.0%      33923
-0.0%     30492
-0.02%     9924
0.02%      7987
-0.03%     1727
0.03%       855
-0.04%      138
0.04%        55
-0.05%        6
0.05%         1
Name: x32, dtype: int64
```

In [ ]:
```
df['x32'] = df['x32'].astype(str)
```

In [ ]:
```
df['x32'] = df['x32'].str.replace('%', '')

df['x32'].head()
```

Out[ ]:
```
0      0.0
1    -0.02
2    -0.01
3     0.01
4     0.01
Name: x32, dtype: object
```

In [ ]:
```
df['x32'] = df['x32'].astype('float64')
```

In [ ]:
```
df['x37'].value_counts()
```

Out[ ]:
```
$-311.26     6
$-336.77     6
$237.4       6
$72.42       6
$341.26      6
            ..
$-505.21     1
$770.07      1
$74.62       1
$-1082.96    1
$-1229.34    1
Name: x37, Length: 129198, dtype: int64
```

In [ ]:
```
df['x37'] = df['x37'].astype(str)
```

In [ ]:

```
df['x37'] = df['x37'].str.replace('$', '')

df['x37'].head()
```

```
<ipython-input-10-7a1d49381926>:1: FutureWarning: The default value of regex
  df['x37'] = df['x37'].str.replace('$', '')
```

Out[ ]:

```
0     1313.96
1     1962.78
2      430.47
3    -2366.29
4     -620.66
Name: x37, dtype: object
```

In [ ]:

```
df['x37'] = df['x37'].astype('float64')
```

In [ ]:

```
df.describe()
```

Out[ ]:

	x0	x1	x2	x3	x4	
count	159974.000000	159975.000000	159962.000000	159963.000000	159974.000000	159963.000
mean	-0.001028	0.001358	-1.150145	-0.024637	-0.000549	0.013
std	0.371137	6.340632	13.273480	8.065032	6.382293	7.670
min	-1.592635	-26.278302	-59.394048	-35.476594	-28.467536	-33.822
25%	-0.251641	-4.260973	-10.166536	-5.454438	-4.313118	-5.148
50%	-0.002047	0.004813	-1.340932	-0.031408	0.000857	0.014
75%	0.248532	4.284220	7.871676	5.445179	4.306660	5.190
max	1.600849	27.988178	63.545653	38.906025	26.247812	35.550

8 rows × 48 columns

In [ ]:

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 160000 entries, 0 to 159999
Data columns (total 51 columns):
 #   Column  Non-Null Count   Dtype  
---  ------  --------------   -----  
 0   x0      159974 non-null  float64
 1   x1      159975 non-null  float64
 2   x2      159962 non-null  float64
 3   x3      159963 non-null  float64
 4   x4      159974 non-null  float64
 5   x5      159963 non-null  float64
 6   x6      159974 non-null  float64
 7   x7      159973 non-null  float64
 8   x8      159979 non-null  float64
 9   x9      159970 non-null  float64
 10  x10     159957 non-null  float64
 11  x11     159970 non-null  float64
 12  x12     159964 non-null  float64
 13  x13     159969 non-null  float64
 14  x14     159966 non-null  float64
 15  x15     159965 non-null  float64
 16  x16     159974 non-null  float64
 17  x17     159973 non-null  float64
 18  x18     159960 non-null  float64
 19  x19     159965 non-null  float64
 20  x20     159962 non-null  float64
 21  x21     159971 non-null  float64
 22  x22     159973 non-null  float64
 23  x23     159953 non-null  float64
 24  x24     159972 non-null  object 
 25  x25     159978 non-null  float64
 26  x26     159964 non-null  float64
 27  x27     159970 non-null  float64
 28  x28     159965 non-null  float64
 29  x29     159970 non-null  object 
 30  x30     159970 non-null  object 
 31  x31     159961 non-null  float64
 32  x32     159969 non-null  float64
 33  x33     159959 non-null  float64
 34  x34     159959 non-null  float64
 35  x35     159970 non-null  float64
 36  x36     159973 non-null  float64
 37  x37     159977 non-null  float64
 38  x38     159969 non-null  float64
 39  x39     159977 non-null  float64
 40  x40     159964 non-null  float64
 41  x41     159960 non-null  float64
 42  x42     159974 non-null  float64
 43  x43     159963 non-null  float64
 44  x44     159960 non-null  float64
 45  x45     159971 non-null  float64
 46  x46     159969 non-null  float64
 47  x47     159963 non-null  float64
 48  x48     159968 non-null  float64
 49  x49     159968 non-null  float64
 50  y       160000 non-null  int64  
```

```
dtypes: float64(47), int64(1), object(3)
memory usage: 62.3+ MB
```

In [ ]:

```
percent_missing = df.isnull().sum() * 100 / len(df)
missing_value_df = pd.DataFrame({'column_name': df.columns,
                                 'percent_missing': percent_missing})
```

In [ ]:
```
missing_value_df
```

Out[ ]:

	column_name	percent_missing
y	y	0.000000
x8	x8	0.013125
x25	x25	0.013750
x37	x37	0.014375
x39	x39	0.014375
x1	x1	0.015625
x0	x0	0.016250
x16	x16	0.016250
x42	x42	0.016250
x4	x4	0.016250
x6	x6	0.016250
x7	x7	0.016875
x22	x22	0.016875
x36	x36	0.016875
x17	x17	0.016875
x24	x24	0.017500
x21	x21	0.018125
x45	x45	0.018125
x30	x30	0.018750
x29	x29	0.018750
x27	x27	0.018750
x9	x9	0.018750
x11	x11	0.018750
x35	x35	0.018750
x32	x32	0.019375
x46	x46	0.019375
x13	x13	0.019375
x38	x38	0.019375
x48	x48	0.020000
x49	x49	0.020000
x14	x14	0.021250
x19	x19	0.021875
x15	x15	0.021875
x28	x28	0.021875
x40	x40	0.022500

	column_name	percent_missing
x26	x26	0.022500
x12	x12	0.022500
x3	x3	0.023125
x5	x5	0.023125
x47	x47	0.023125
x43	x43	0.023125
x2	x2	0.023750
x20	x20	0.023750
x31	x31	0.024375
x41	x41	0.025000
x18	x18	0.025000
x44	x44	0.025000
x33	x33	0.025625
x34	x34	0.025625
x10	x10	0.026875
x23	x23	0.029375

In [ ]:

```
df.shape
```

Out[ ]:

```
(160000, 51)
```

In [ ]:

```
#No column has more than 3% can either drop or use mean/median?
#will go with median fill
#Maybe leave it?

def func(df):
    df = df.copy()
    for col in df:
        # select only integer or float dtypes
        if df[col].dtype in ("int", "float"):
            df[col] = df[col].fillna(df[col].mode()[0])
    return df

df = func(df)
```

In [ ]:

```
df['x24'] = df['x24'].fillna('unknown')
df['x29'] = df['x29'].fillna('unknown')
df['x30'] = df['x30'].fillna('unknown')
```

In [ ]:

```
category = df.select_dtypes(exclude='number')
category.head(5)
```

Out[ ]:

	x24	x29	x30
0	euorpe	Jul	tue
1	asia	Aug	wed
2	asia	Jul	wed
3	asia	Jul	wed
4	asia	Jul	tue

In [ ]:

```
cat = OneHotEncoder().fit_transform(category)
cat
```

Out[ ]:

```
<160000x23 sparse matrix of type '<class 'numpy.float64'>'
	with 480000 stored elements in Compressed Sparse Row format>
```

In [ ]:

```
cat2 = pd.DataFrame.sparse.from_spmatrix(cat)
```

In [ ]:

```
numeric = df.select_dtypes(include='number')
numeric.head(5)
```

Out[ ]:

	x0	x1	x2	x3	x4	x5	x6	x7	
0	-0.166563	-3.961588	4.621113	2.481908	-1.800135	0.804684	6.718751	-14.789997	-1.(
1	-0.149894	-0.585676	27.839856	4.152333	6.426802	-2.426943	40.477058	-6.725709	0.8
2	-0.321707	-1.429819	12.251561	6.586874	-5.304647	-11.311090	17.812850	11.060572	5.3
3	-0.245594	5.076677	-24.149632	3.637307	6.505811	2.290224	-35.111751	-18.913592	-0.3
4	-0.273366	0.306326	-11.352593	1.676758	2.928441	-0.616824	-16.505817	27.532281	1.

5 rows × 48 columns

In [ ]:

```
frames = [cat2,numeric]

df2 = pd.concat(frames)

df2.shape
```

Out[ ]:

```
(320000, 71)
```

In [ ]:
```
df2.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 320000 entries, 0 to 159999
Data columns (total 71 columns):
 #   Column  Non-Null Count   Dtype
---  ------  --------------   -----
 0   0       160000 non-null  Sparse[float64, 0]
 1   1       160000 non-null  Sparse[float64, 0]
 2   2       160000 non-null  Sparse[float64, 0]
 3   3       160000 non-null  Sparse[float64, 0]
 4   4       160000 non-null  Sparse[float64, 0]
 5   5       160000 non-null  Sparse[float64, 0]
 6   6       160000 non-null  Sparse[float64, 0]
 7   7       160000 non-null  Sparse[float64, 0]
 8   8       160000 non-null  Sparse[float64, 0]
 9   9       160000 non-null  Sparse[float64, 0]
 10  10      160000 non-null  Sparse[float64, 0]
 11  11      160000 non-null  Sparse[float64, 0]
 12  12      160000 non-null  Sparse[float64, 0]
 13  13      160000 non-null  Sparse[float64, 0]
 14  14      160000 non-null  Sparse[float64, 0]
 15  15      160000 non-null  Sparse[float64, 0]
 16  16      160000 non-null  Sparse[float64, 0]
 17  17      160000 non-null  Sparse[float64, 0]
 18  18      160000 non-null  Sparse[float64, 0]
 19  19      160000 non-null  Sparse[float64, 0]
 20  20      160000 non-null  Sparse[float64, 0]
 21  21      160000 non-null  Sparse[float64, 0]
 22  22      160000 non-null  Sparse[float64, 0]
 23  x0      160000 non-null  float64
 24  x1      160000 non-null  float64
 25  x10     160000 non-null  float64
 26  x11     160000 non-null  float64
 27  x12     160000 non-null  float64
 28  x13     160000 non-null  float64
 29  x14     160000 non-null  float64
 30  x15     160000 non-null  float64
 31  x16     160000 non-null  float64
 32  x17     160000 non-null  float64
 33  x18     160000 non-null  float64
 34  x19     160000 non-null  float64
 35  x2      160000 non-null  float64
 36  x20     160000 non-null  float64
 37  x21     160000 non-null  float64
 38  x22     160000 non-null  float64
 39  x23     160000 non-null  float64
 40  x25     160000 non-null  float64
 41  x26     160000 non-null  float64
 42  x27     160000 non-null  float64
 43  x28     160000 non-null  float64
 44  x3      160000 non-null  float64
 45  x31     160000 non-null  float64
 46  x32     160000 non-null  float64
 47  x33     160000 non-null  float64
 48  x34     160000 non-null  float64
 49  x35     160000 non-null  float64
 50  x36     160000 non-null  float64
 51  x37     160000 non-null  float64
```

```
 52  x38     160000 non-null  float64
 53  x39     160000 non-null  float64
 54  x4      160000 non-null  float64
 55  x40     160000 non-null  float64
 56  x41     160000 non-null  float64
 57  x42     160000 non-null  float64
 58  x43     160000 non-null  float64
 59  x44     160000 non-null  float64
 60  x45     160000 non-null  float64
 61  x46     160000 non-null  float64
 62  x47     160000 non-null  float64
 63  x48     160000 non-null  float64
 64  x49     160000 non-null  float64
 65  x5      160000 non-null  float64
 66  x6      160000 non-null  float64
 67  x7      160000 non-null  float64
 68  x8      160000 non-null  float64
 69  x9      160000 non-null  float64
 70  y       160000 non-null  float64
dtypes: Sparse[float64, 0](23), float64(48)
memory usage: 167.2 MB
```

In [ ]:

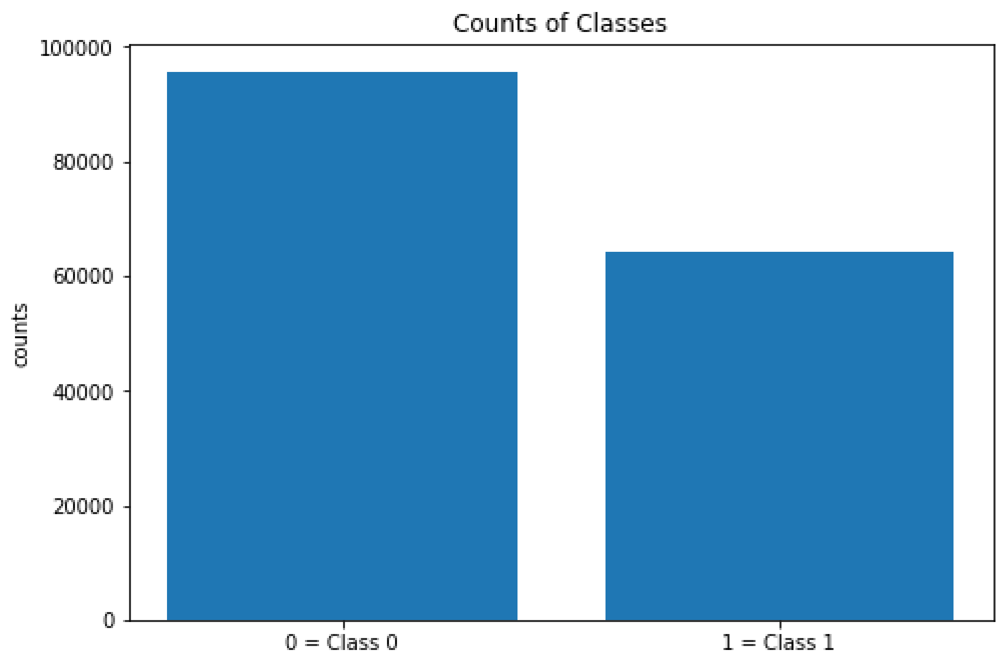
```
#Count values in label
df2['y'].value_counts()
```

Out[ ]:

```
0.0    95803
1.0    64197
Name: y, dtype: int64
```

In [ ]:

```
#class 1 misclassification is $100 penalty, class 0 misclassification is $26
#Should downsample for more accuracy
fig = plt.figure()
ax = fig.add_axes([0,0,1,1])
labels = ["0 = Class 0", "1 = Class 1"]
ax.bar(labels,df2["y"].value_counts())
plt.ylabel("counts")
plt.title('Counts of Classes')
plt.show()
```



In [ ]:

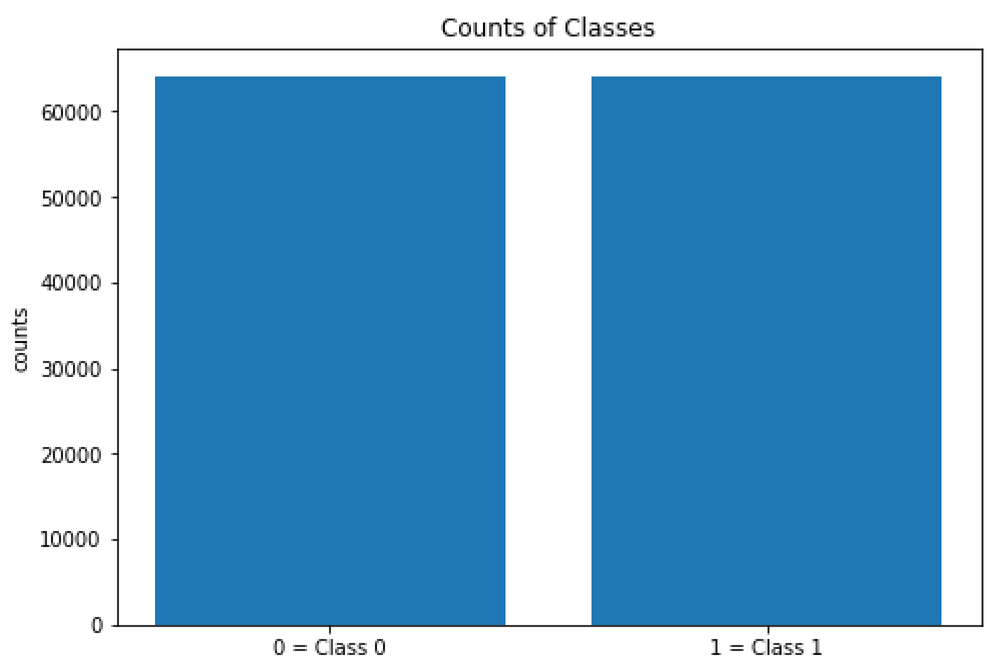
```
#code to downsample class 1
# Separate majority and minority classes
from sklearn.utils import resample

df_class0 = df2[df2['y']==0]
df_class1 = df2[df2['y']==1]

# Downsample majority class
class0_downsampled = resample(df_class0,
                              replace=False,    # sample without replacem
                              n_samples=64197,     # to match minority cl
                              random_state=444) # reproducible results

# Combine minority class with downsampled majority class
df_downsampled = pd.concat([class0_downsampled, df_class1])

# Display new class counts
df_downsampled['y'].value_counts()
```

Out[ ]:

```
0.0    64197
1.0    64197
Name: y, dtype: int64
```

In [ ]:

```
#class 1 misclassification is $100 penalty, class 0 misclassification is $2(
fig = plt.figure()
ax = fig.add_axes([0,0,1,1])
labels = ["0 = Class 0", "1 = Class 1"]
ax.bar(labels,df_downsampled["y"].value_counts())
plt.ylabel("counts")
plt.title('Counts of Classes')
plt.show()
```



In [ ]:
```
#https://www.relataly.com/using-random-search-to-tune-the-hyperparameters-of
```

In [ ]:
```
X=df_downsampled.loc[:,df_downsampled.columns !='y'] # Features
y=df_downsampled['y']  # Labels
```

In [ ]:
```
X = X.fillna(0)
```

In [ ]:
```
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.33, ra
```

In [ ]:
```
# Define the Estimator and the Parameter Ranges
rf = RandomForestClassifier()
n_estimators = [50, 100, 200]
criterion=['gini', 'entropy', 'log_loss']
min_samples_split = [5, 10, 20, 50]
max_features = ['log2', 'sqrt']
number_of_iterations = 20


# Define the param distribution dictionary
param_distributions = dict(n_estimators = n_estimators,
                           criterion = criterion,
                           min_samples_split=min_samples_split,
                           max_features=max_features)
```

In [ ]:
```
# Build the gridsearch
grid = RandomizedSearchCV(estimator=rf,
                          param_distributions=param_distributions,
                          n_iter=number_of_iterations)
```

In [ ]:

```
grid_results = grid.fit(X_train, y_train)

# Summarize the results in a readable format
print("Best params: {0}, using {1}".format(grid_results.cv_results_['mean_te
results_df = pd.DataFrame(grid_results.cv_results_)
```

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/usr/local/lib/python3.8/dist-packages/sklearn/model_selection/_validation.p
45 fits failed out of a total of 100.
The score on these train-test partitions for these parameters will be set to
If these failures are not expected, you can try to debug them by setting err

Below are more details about the failures:
-----------------------------------------------------------------------------
```

```
45 fits failed with the following error:
Traceback (most recent call last):
  File "/usr/local/lib/python3.8/dist-packages/sklearn/model_selection/_vali
    estimator.fit(X_train, y_train, **fit_params)
  File "/usr/local/lib/python3.8/dist-packages/sklearn/ensemble/_forest.py",
    trees = Parallel(
  File "/usr/local/lib/python3.8/dist-packages/joblib/parallel.py", line 108
    if self.dispatch_one_batch(iterator):
  File "/usr/local/lib/python3.8/dist-packages/joblib/parallel.py", line 901
    self._dispatch(tasks)
  File "/usr/local/lib/python3.8/dist-packages/joblib/parallel.py", line 819
    job = self._backend.apply_async(batch, callback=cb)
  File "/usr/local/lib/python3.8/dist-packages/joblib/_parallel_backends.py"
    result = ImmediateResult(func)
  File "/usr/local/lib/python3.8/dist-packages/joblib/_parallel_backends.py"
    self.results = batch()
  File "/usr/local/lib/python3.8/dist-packages/joblib/parallel.py", line 288
    return [func(*args, **kwargs)
  File "/usr/local/lib/python3.8/dist-packages/joblib/parallel.py", line 288
    return [func(*args, **kwargs)
  File "/usr/local/lib/python3.8/dist-packages/sklearn/utils/fixes.py", line
    return self.function(*args, **kwargs)
  File "/usr/local/lib/python3.8/dist-packages/sklearn/ensemble/_forest.py",
    tree.fit(X, y, sample_weight=curr_sample_weight, check_input=False)
  File "/usr/local/lib/python3.8/dist-packages/sklearn/tree/_classes.py", li
    super().fit(
  File "/usr/local/lib/python3.8/dist-packages/sklearn/tree/_classes.py", li
    criterion = CRITERIA_CLF[self.criterion](
KeyError: 'log_loss'

  warnings.warn(some_fits_failed_message, FitFailedWarning)
/usr/local/lib/python3.8/dist-packages/sklearn/model_selection/_search.py:96
 0.89984072 0.90422329 0.91016355 0.90661797        nan        nan
        nan        nan 0.90038709 0.90758288 0.9077921  0.91107028
        nan        nan]
  warnings.warn(
/usr/local/lib/python3.8/dist-packages/sklearn/utils/validation.py:1688: Fut
  warnings.warn(
/usr/local/lib/python3.8/dist-packages/sklearn/utils/validation.py:624: User
  warnings.warn(



Best params: [0.90708299        nan        nan 0.91134926        nan 0.90156
 0.89984072 0.90422329 0.91016355 0.90661797        nan        nan
        nan        nan 0.90038709 0.90758288 0.9077921  0.91107028
        nan        nan], using {'n_estimators': 100, 'min_samples_split': 5,
```

In [ ]:

```
best_model = grid_results.best_estimator_
y_pred = best_model.predict(X_test)
```

```
/usr/local/lib/python3.8/dist-packages/sklearn/utils/validation.py:1688: Fut
  warnings.warn(
/usr/local/lib/python3.8/dist-packages/sklearn/utils/validation.py:624: User
  warnings.warn(
```

In [ ]:

```
#Classification Report

target_names = ['class 0', 'class 1']

print(classification_report(y_test, y_pred, target_names=target_names))
```

```
              precision    recall  f1-score   support

     class 0       0.92      0.92      0.92     21336
     class 1       0.92      0.92      0.92     21035

    accuracy                           0.92     42371
   macro avg       0.92      0.92      0.92     42371
weighted avg       0.92      0.92      0.92     42371
```

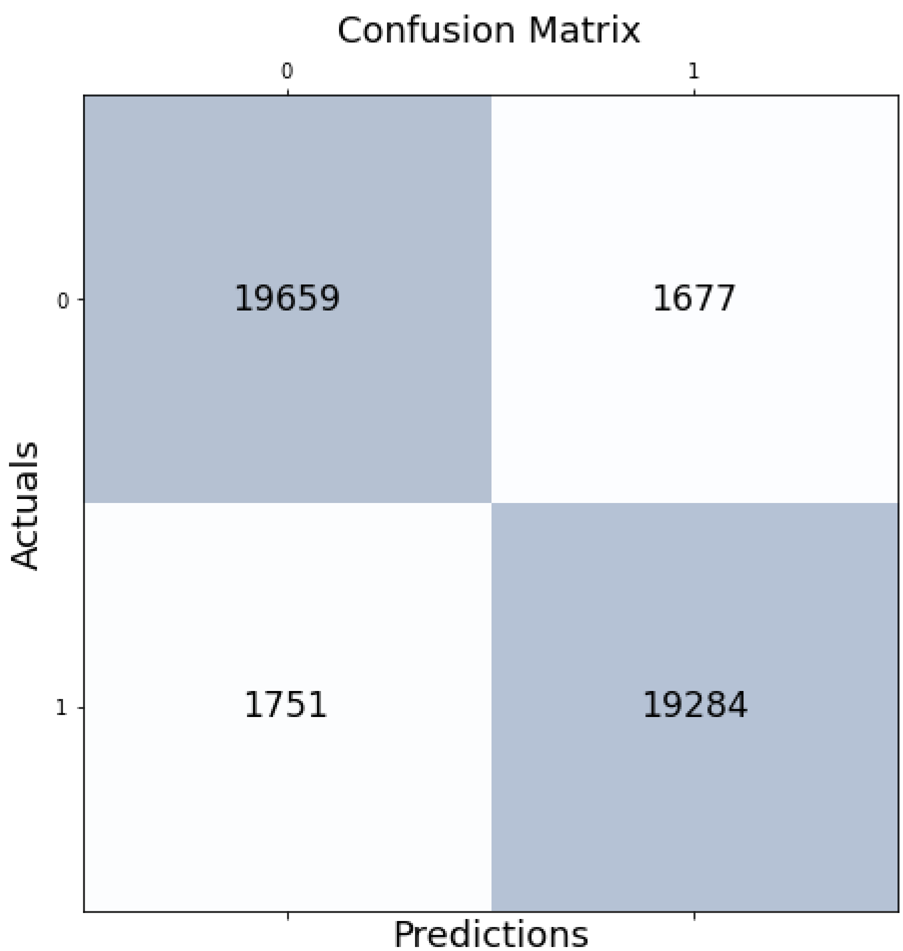
In [ ]:

```
#Confusion Matrix
from sklearn.metrics import confusion_matrix

conf_matrix = confusion_matrix(y_true=y_test, y_pred=y_pred)

fig, ax = plt.subplots(figsize=(7.5, 7.5))
ax.matshow(conf_matrix, cmap=plt.cm.Blues, alpha=0.3)
for i in range(conf_matrix.shape[0]):
    for j in range(conf_matrix.shape[1]):
        ax.text(x=j, y=i,s=conf_matrix[i, j], va='center', ha='center', size

plt.xlabel('Predictions', fontsize=18)
plt.ylabel('Actuals', fontsize=18)
plt.title('Confusion Matrix', fontsize=18)
plt.show()
```



In [ ]:

```
https://www.geeksforgeeks.org/hyperparameter-tuning-using-gridsearchcv-and-k
```

In [ ]:

```
def build_clf(unit):
  # creating the layers of the NN
  ann = tf.keras.models.Sequential()
  ann.add(tf.keras.layers.Dense(units=unit, activation='tanh'))
  ann.add(tf.keras.layers.Dense(units=unit, activation='relu'))
  ann.add(tf.keras.layers.Dense(units=1, activation='linear'))
  ann.compile(optimizer = 'adam', loss = 'binary_crossentropy', metrics = ['
  return ann
```

In [ ]:

```
model=KerasClassifier(build_fn=build_clf)
```

```
<ipython-input-25-94990c6d4461>:1: DeprecationWarning: KerasClassifier is de
  model=KerasClassifier(build_fn=build_clf)
```

In [ ]:

```
params={'batch_size':[100, 20, 50, 25, 32],
        'nb_epoch':[200, 100, 300, 400],
        'unit':[5,6, 10, 11, 12, 15],

        }
gs=GridSearchCV(estimator=model, param_grid=params, cv=10)
# now fit the dataset to the GridSearchCV object.
fit = gs.fit(X_train, y_train)
```

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87/87 [==============================] - 0s 2ms/step - loss: 7.5905 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.7403 - accu
87/87 [==============================] - 0s 2ms/step - loss: 1.0422 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.0402 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7673 - accura
775/775 [==============================] - 3s 3ms/step - loss: 0.8327 - accu
87/87 [==============================] - 0s 3ms/step - loss: 0.7637 - accura
775/775 [==============================] - 3s 3ms/step - loss: 4.7425 - accu
87/87 [==============================] - 0s 2ms/step - loss: 4.3645 - accura
775/775 [==============================] - 3s 3ms/step - loss: 0.8278 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7750 - accura
775/775 [==============================] - 3s 3ms/step - loss: 7.7336 - accu
87/87 [==============================] - 0s 3ms/step - loss: 7.6396 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.4442 - accu
```

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87/87 [==============================] - 0s 2ms/step - loss: 0.9283 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.9649 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7819 - accura
775/775 [==============================] - 3s 3ms/step - loss: 2.4174 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.9492 - accura
775/775 [==============================] - 3s 3ms/step - loss: 3.6641 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8777 - accura
775/775 [==============================] - 3s 3ms/step - loss: 0.7838 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.6892 - accura
775/775 [==============================] - 3s 3ms/step - loss: 4.2644 - accu
87/87 [==============================] - 0s 2ms/step - loss: 4.2296 - accura
775/775 [==============================] - 3s 3ms/step - loss: 0.8952 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7463 - accura
775/775 [==============================] - 3s 3ms/step - loss: 2.4678 - accu
87/87 [==============================] - 0s 2ms/step - loss: 1.0310 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.4691 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7812 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.0464 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7678 - accura
775/775 [==============================] - 3s 3ms/step - loss: 4.2734 - accu
87/87 [==============================] - 0s 2ms/step - loss: 4.1460 - accura
775/775 [==============================] - 3s 3ms/step - loss: 2.8231 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8124 - accura
775/775 [==============================] - 3s 3ms/step - loss: 2.5871 - accu
87/87 [==============================] - 0s 2ms/step - loss: 1.0879 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.9220 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7675 - accura
775/775 [==============================] - 3s 3ms/step - loss: 5.1640 - accu
87/87 [==============================] - 0s 2ms/step - loss: 4.1807 - accura
775/775 [==============================] - 3s 3ms/step - loss: 5.6892 - accu
87/87 [==============================] - 0s 2ms/step - loss: 3.9663 - accura
775/775 [==============================] - 3s 3ms/step - loss: 0.9159 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.6865 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.5160 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.6420 - accura
775/775 [==============================] - 3s 4ms/step - loss: 1.1120 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7475 - accura
775/775 [==============================] - 3s 3ms/step - loss: 4.2933 - accu
87/87 [==============================] - 1s 2ms/step - loss: 1.0185 - accura
775/775 [==============================] - 3s 3ms/step - loss: 4.3139 - accu
87/87 [==============================] - 0s 2ms/step - loss: 4.1348 - accura
775/775 [==============================] - 3s 3ms/step - loss: 0.9450 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7726 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.3110 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7248 - accura
775/775 [==============================] - 3s 3ms/step - loss: 0.8632 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.6751 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.6634 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8174 - accura
775/775 [==============================] - 3s 3ms/step - loss: 4.3200 - accu
87/87 [==============================] - 0s 2ms/step - loss: 4.2287 - accura
775/775 [==============================] - 3s 3ms/step - loss: 0.8441 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7489 - accura
775/775 [==============================] - 3s 3ms/step - loss: 0.8952 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7786 - accura
775/775 [==============================] - 3s 3ms/step - loss: 0.9368 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7793 - accura
```

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775/775 [==============================] - 3s 3ms/step - loss: 1.1155 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8267 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.0722 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7768 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.6335 - accu
87/87 [==============================] - 1s 2ms/step - loss: 0.8271 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.2994 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8171 - accura
775/775 [==============================] - 3s 3ms/step - loss: 2.6849 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7468 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.4063 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8837 - accura
775/775 [==============================] - 3s 3ms/step - loss: 5.5643 - accu
87/87 [==============================] - 0s 2ms/step - loss: 4.2629 - accura
775/775 [==============================] - 3s 3ms/step - loss: 2.6897 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8321 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.4819 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8611 - accura
775/775 [==============================] - 3s 3ms/step - loss: 3.9704 - accu
87/87 [==============================] - 0s 2ms/step - loss: 3.5442 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.0201 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.9505 - accura
775/775 [==============================] - 3s 3ms/step - loss: 4.1512 - accu
87/87 [==============================] - 0s 2ms/step - loss: 4.0164 - accura
775/775 [==============================] - 3s 3ms/step - loss: 4.0830 - accu
87/87 [==============================] - 0s 2ms/step - loss: 3.9644 - accura
775/775 [==============================] - 3s 3ms/step - loss: 0.9956 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8029 - accura
775/775 [==============================] - 3s 3ms/step - loss: 3.8372 - accu
87/87 [==============================] - 1s 3ms/step - loss: 0.7877 - accura
775/775 [==============================] - 3s 3ms/step - loss: 4.4804 - accu
87/87 [==============================] - 0s 2ms/step - loss: 4.1390 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.4360 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7915 - accura
775/775 [==============================] - 3s 3ms/step - loss: 4.1730 - accu
87/87 [==============================] - 0s 2ms/step - loss: 4.0177 - accura
775/775 [==============================] - 3s 3ms/step - loss: 4.6617 - accu
87/87 [==============================] - 0s 2ms/step - loss: 3.7087 - accura
775/775 [==============================] - 3s 3ms/step - loss: 4.5237 - accu
87/87 [==============================] - 0s 2ms/step - loss: 4.3090 - accura
775/775 [==============================] - 3s 3ms/step - loss: 7.6230 - accu
87/87 [==============================] - 0s 2ms/step - loss: 7.5290 - accura
775/775 [==============================] - 3s 3ms/step - loss: 2.2916 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7384 - accura
775/775 [==============================] - 3s 3ms/step - loss: 4.2882 - accu
87/87 [==============================] - 0s 2ms/step - loss: 4.0492 - accura
775/775 [==============================] - 3s 3ms/step - loss: 5.1351 - accu
87/87 [==============================] - 0s 2ms/step - loss: 1.5389 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.5364 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8628 - accura
775/775 [==============================] - 3s 3ms/step - loss: 6.0164 - accu
87/87 [==============================] - 0s 2ms/step - loss: 4.4676 - accura
775/775 [==============================] - 3s 3ms/step - loss: 4.2018 - accu
87/87 [==============================] - 0s 2ms/step - loss: 4.1927 - accura
775/775 [==============================] - 3s 3ms/step - loss: 2.8836 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7842 - accura
775/775 [==============================] - 3s 3ms/step - loss: 2.6450 - accu
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87/87 [==============================] - 0s 2ms/step - loss: 0.7022 - accura
775/775 [==============================] - 3s 3ms/step - loss: 0.7274 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.6957 - accura
775/775 [==============================] - 3s 3ms/step - loss: 2.0724 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7420 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.7109 - accu
87/87 [==============================] - 0s 3ms/step - loss: 0.7485 - accura
775/775 [==============================] - 3s 4ms/step - loss: 1.2803 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7652 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.4783 - accu
87/87 [==============================] - 0s 2ms/step - loss: 1.0235 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.2016 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7979 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.5509 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7793 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.2433 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7714 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.9955 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7506 - accura
775/775 [==============================] - 3s 3ms/step - loss: 2.2607 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8867 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.0621 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8103 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.0663 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8457 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.1000 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8060 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.9864 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8667 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.8669 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8227 - accura
775/775 [==============================] - 3s 3ms/step - loss: 4.3386 - accu
87/87 [==============================] - 0s 2ms/step - loss: 4.2373 - accura
775/775 [==============================] - 3s 3ms/step - loss: 2.8901 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8637 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.5241 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8213 - accura
775/775 [==============================] - 3s 3ms/step - loss: 3.3742 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.9071 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.3251 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7997 - accura
775/775 [==============================] - 3s 3ms/step - loss: 3.5110 - accu
87/87 [==============================] - 0s 3ms/step - loss: 0.9572 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.0856 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7898 - accura
775/775 [==============================] - 3s 3ms/step - loss: 2.2622 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7427 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.2662 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7688 - accura
775/775 [==============================] - 3s 3ms/step - loss: 0.9619 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7768 - accura
775/775 [==============================] - 3s 3ms/step - loss: 0.9360 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7249 - accura
775/775 [==============================] - 3s 3ms/step - loss: 4.0130 - accu
87/87 [==============================] - 0s 3ms/step - loss: 1.0261 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.6584 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.9339 - accura
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775/775 [==============================] - 3s 3ms/step - loss: 4.4166 - accu
87/87 [==============================] - 0s 2ms/step - loss: 4.0867 - accura
775/775 [==============================] - 3s 3ms/step - loss: 3.5584 - accu
87/87 [==============================] - 0s 2ms/step - loss: 1.0118 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.1852 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7526 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.3630 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7836 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.0361 - accu
87/87 [==============================] - 0s 3ms/step - loss: 0.7492 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.0239 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8704 - accura
775/775 [==============================] - 3s 3ms/step - loss: 0.9651 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7924 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.0446 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.7972 - accura
775/775 [==============================] - 3s 3ms/step - loss: 2.6095 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8135 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.1027 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8179 - accura
775/775 [==============================] - 3s 3ms/step - loss: 4.6857 - accu
87/87 [==============================] - 0s 2ms/step - loss: 4.0586 - accura
775/775 [==============================] - 3s 3ms/step - loss: 1.8453 - accu
87/87 [==============================] - 0s 2ms/step - loss: 0.8142 - accura
3871/3871 [==============================] - 10s 2ms/step - loss: 0.6799 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6295 - accu
3871/3871 [==============================] - 11s 3ms/step - loss: 2.2297 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7328 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 1.6511 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.8176 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.3762 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7107 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 3.7724 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.9348 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 7.7553 - a
431/431 [==============================] - 1s 2ms/step - loss: 7.5905 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 2.9833 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7815 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 3.0702 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.9575 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 4.2745 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7555 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.2066 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7240 - accu
3871/3871 [==============================] - 11s 3ms/step - loss: 2.5620 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6946 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 5.1126 - a
431/431 [==============================] - 1s 2ms/step - loss: 4.0468 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 0.9039 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7762 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.7365 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6723 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 7.7375 - a
431/431 [==============================] - 1s 2ms/step - loss: 7.7573 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.8024 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7151 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.9761 - a
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431/431 [==============================] - 1s 2ms/step - loss: 0.7163 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.7828 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6961 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.9838 - a
431/431 [==============================] - 1s 3ms/step - loss: 0.6916 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 7.7118 - a
431/431 [==============================] - 1s 2ms/step - loss: 7.9886 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 0.7582 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6416 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 1.7992 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6394 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 0.9832 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7690 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.8640 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6810 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.1373 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6889 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.8037 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6845 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.4272 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7249 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 2.8715 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6996 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.9601 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6295 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.0272 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7396 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 0.8069 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7184 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 1.1353 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7926 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 0.8320 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6986 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.3956 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6410 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 2.4288 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6770 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.1043 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.8067 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 3.2465 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.8090 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.7002 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.5999 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.7281 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6483 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.9010 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6607 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 0.9220 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6310 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 1.5371 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7100 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 2.0979 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.8035 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.5970 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7552 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.9824 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6359 - accu
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3872/3872 [==============================] - 12s 3ms/step - loss: 2.5828 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7865 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.8979 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6330 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.9282 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7322 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.7706 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6807 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.8827 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6414 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 3.7319 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6281 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 1.0483 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6585 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 0.9474 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6593 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.0745 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7553 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 2.5448 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6384 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.7521 - a
431/431 [==============================] - 1s 3ms/step - loss: 0.5993 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.7288 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6239 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.2436 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6774 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.3092 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7968 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.8024 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6709 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 1.5071 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7078 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 0.7422 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6949 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 0.9860 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7645 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.8233 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7223 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.1969 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7962 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.4084 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7471 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.7562 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7121 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.8243 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7611 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.7451 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6879 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.1435 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6693 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 3.3948 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.8818 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 1.4814 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6298 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 1.8100 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7738 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 2.6831 - a
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431/431 [==============================] - 1s 2ms/step - loss: 0.7865 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.7126 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6742 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.0111 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7079 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 7.7347 - a
431/431 [==============================] - 1s 2ms/step - loss: 7.7824 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.2697 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.8642 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.8031 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7359 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.9086 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6574 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 2.3931 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7093 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 0.7213 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6414 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 0.7142 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6590 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 3.4789 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7846 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.3871 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7375 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.7594 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7711 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.8385 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6542 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.8046 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6796 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.7863 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6237 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.8371 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7091 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 0.9093 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.8753 - accu
3871/3871 [==============================] - 11s 3ms/step - loss: 0.8176 - a
431/431 [==============================] - 1s 3ms/step - loss: 0.6894 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 0.8937 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7026 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 4.8355 - a
431/431 [==============================] - 1s 2ms/step - loss: 4.0407 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.3987 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7524 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.8554 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7225 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.7222 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6233 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.7792 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7089 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.2640 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.5980 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.9918 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7190 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 1.1575 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6443 - accu
3871/3871 [==============================] - 11s 3ms/step - loss: 0.7717 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6197 - accu
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3871/3871 [==============================] - 10s 2ms/step - loss: 0.8189 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6320 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.8050 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7258 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.7970 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.5908 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.8131 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6757 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.0585 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.8100 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.3471 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6555 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.9166 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7103 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 4.1606 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6914 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 0.8954 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6804 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 2.5164 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7457 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 0.9452 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7320 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.9569 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7453 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.0448 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6595 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 2.8252 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6327 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.9142 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6915 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 3.0865 - a
431/431 [==============================] - 1s 3ms/step - loss: 0.6818 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.5114 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6456 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.7731 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6609 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 1.9930 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7170 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 0.7166 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6309 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 0.7398 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6242 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.8548 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6201 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.8458 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7770 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.4477 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7886 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.8660 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7055 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.9061 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.8421 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 3.9886 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.8305 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.7874 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6994 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 1.1385 - a
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431/431 [==============================] - 1s 3ms/step - loss: 0.7465 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 5.5090 - a
431/431 [==============================] - 1s 2ms/step - loss: 4.1938 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 1.2255 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7014 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.0267 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7791 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.8692 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6605 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.8242 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.8292 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 3.3428 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6939 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.0624 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7807 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.9859 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6973 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.6569 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6947 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 0.8816 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7500 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 3.3063 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6363 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 1.7190 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6347 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.9818 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7316 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.8152 - a
431/431 [==============================] - 1s 3ms/step - loss: 0.6821 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.5279 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7662 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.7721 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6429 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.4959 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6790 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 3.2467 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.9348 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.9981 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6682 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 1.2039 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7760 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 0.8762 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6204 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 0.8050 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7301 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.8342 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7108 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 2.7615 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7139 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.3468 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6482 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 2.2402 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7183 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.9574 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7015 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.7891 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6202 - accu
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3872/3872 [==============================] - 13s 3ms/step - loss: 1.2540 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7156 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 0.9859 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6915 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 0.7672 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6655 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 2.9713 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6646 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.9567 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7429 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.7522 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6157 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.7726 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6584 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.9383 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7028 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 2.3984 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.8116 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.1689 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6382 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.2209 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7757 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 1.1459 - a
431/431 [==============================] - 1s 3ms/step - loss: 0.6628 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 1.1838 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6757 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 1.0911 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6543 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.0399 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7650 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.9246 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6598 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.2401 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7956 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.7616 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6548 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.0064 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7182 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.8600 - a
431/431 [==============================] - 1s 3ms/step - loss: 0.6843 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 3.3051 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7567 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 4.3266 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.8924 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 0.9246 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6877 - accu
3871/3871 [==============================] - 10s 2ms/step - loss: 0.7270 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6519 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.9514 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.8501 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 4.1864 - a
431/431 [==============================] - 1s 2ms/step - loss: 4.1821 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 2.1420 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7386 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.8621 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7024 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.0596 - a
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431/431 [==============================] - 1s 2ms/step - loss: 0.8111 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 7.7522 - a
431/431 [==============================] - 1s 2ms/step - loss: 7.6246 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.9831 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7887 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 1.6437 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7104 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 4.3931 - a
431/431 [==============================] - 1s 2ms/step - loss: 4.2808 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 1.4416 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7983 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 0.8026 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7359 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.1001 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.8119 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 2.1637 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6548 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.2657 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7533 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.8205 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.8087 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.3633 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6713 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.4173 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6699 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 2.6397 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7301 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 1.2840 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6926 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 0.8055 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6938 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.9401 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6672 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.7822 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6915 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.9948 - a
431/431 [==============================] - 1s 3ms/step - loss: 0.6887 - accu
3872/3872 [==============================] - 14s 3ms/step - loss: 2.6300 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7817 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.5662 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7805 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.7197 - a
431/431 [==============================] - 1s 3ms/step - loss: 0.5833 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.6482 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6477 - accu
3871/3871 [==============================] - 11s 3ms/step - loss: 0.7437 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7024 - accu
3871/3871 [==============================] - 11s 3ms/step - loss: 0.8025 - a
431/431 [==============================] - 1s 3ms/step - loss: 0.6513 - accu
3871/3871 [==============================] - 12s 3ms/step - loss: 0.8958 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6625 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.2065 - a
431/431 [==============================] - 1s 3ms/step - loss: 0.7342 - accu
3872/3872 [==============================] - 14s 3ms/step - loss: 0.8196 - a
431/431 [==============================] - 1s 3ms/step - loss: 0.6150 - accu
3872/3872 [==============================] - 14s 3ms/step - loss: 1.1432 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6959 - accu
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3872/3872 [==============================] - 13s 3ms/step - loss: 2.5348 - a
431/431 [==============================] - 1s 3ms/step - loss: 0.7766 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.1409 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6401 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.8532 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7029 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.7276 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6552 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 0.7145 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6264 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 1.1125 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7190 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 1.9364 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6539 - accu
3872/3872 [==============================] - 14s 3ms/step - loss: 2.3116 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7118 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.8771 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6866 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.4848 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7571 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.8547 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7613 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.6853 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6270 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.3880 - a
431/431 [==============================] - 1s 3ms/step - loss: 0.7646 - accu
3872/3872 [==============================] - 14s 3ms/step - loss: 1.0597 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6987 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 0.9203 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7793 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 0.7743 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6852 - accu
3871/3871 [==============================] - 10s 3ms/step - loss: 0.8540 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6528 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.7290 - a
431/431 [==============================] - 1s 3ms/step - loss: 0.6463 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.8149 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6432 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 0.8333 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6918 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.0911 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.6590 - accu
3872/3872 [==============================] - 12s 3ms/step - loss: 1.3829 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7376 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 4.0478 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.8143 - accu
3872/3872 [==============================] - 13s 3ms/step - loss: 1.2423 - a
431/431 [==============================] - 1s 2ms/step - loss: 0.7578 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 4.3135 - ac
173/173 [==============================] - 1s 2ms/step - loss: 4.2680 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 3.5039 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7014 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 1.1212 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.6927 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 2.7931 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7967 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 7.7375 - ac
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173/173 [==============================] - 1s 2ms/step - loss: 7.7573 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 7.7560 - ac
173/173 [==============================] - 1s 2ms/step - loss: 7.5905 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 1.6867 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.8246 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 7.7377 - ac
173/173 [==============================] - 1s 2ms/step - loss: 7.7555 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 7.7522 - ac
173/173 [==============================] - 1s 2ms/step - loss: 7.6246 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.5229 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.6984 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 0.7943 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.6903 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 5.1259 - ac
173/173 [==============================] - 1s 2ms/step - loss: 4.0368 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 4.2202 - ac
173/173 [==============================] - 1s 2ms/step - loss: 4.0886 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 4.3382 - ac
173/173 [==============================] - 1s 2ms/step - loss: 4.0726 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 3.9195 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.9012 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 1.2893 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7675 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 4.3907 - ac
173/173 [==============================] - 1s 2ms/step - loss: 4.1847 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 1.2463 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7810 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 2.1873 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7930 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 6.7769 - ac
173/173 [==============================] - 1s 2ms/step - loss: 4.3377 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 2.3736 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8786 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8949 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7132 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.0008 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6913 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.6438 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7119 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 1.0637 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7503 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.9079 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6806 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.4450 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.9461 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 2.6176 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7581 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 1.2406 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7820 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8778 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7247 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 2.4710 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7106 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 1.9229 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7890 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 1.5064 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7145 - accu
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1549/1549 [==============================] - 6s 3ms/step - loss: 0.8508 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6643 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.9988 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.6826 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 1.8192 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7499 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 0.6999 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6202 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.1353 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6839 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 1.3217 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7942 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 3.7108 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.8991 - accu
1549/1549 [==============================] - 6s 4ms/step - loss: 1.5300 - ac
173/173 [==============================] - 1s 2ms/step - loss: 1.1510 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.9027 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7608 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.7224 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7629 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8828 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7161 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.0621 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7333 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 0.7751 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.6815 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.7466 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6730 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.0460 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8081 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 4.3929 - ac
173/173 [==============================] - 1s 3ms/step - loss: 3.4175 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.1311 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8149 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.0017 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6775 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.3079 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7995 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.5910 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7120 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8577 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7504 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8344 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6768 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 3.0917 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7229 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.2255 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7657 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.3747 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8103 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.1614 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6604 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.1606 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7719 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 2.7677 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8250 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 4.2629 - ac
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173/173 [==============================] - 1s 3ms/step - loss: 3.9670 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.7618 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6435 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 2.1139 - ac
173/173 [==============================] - 1s 3ms/step - loss: 1.0198 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 4.6439 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8456 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.2589 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.8841 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.4911 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7555 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 4.4939 - ac
173/173 [==============================] - 1s 3ms/step - loss: 4.3051 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 0.7478 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7083 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 7.7116 - ac
173/173 [==============================] - 1s 2ms/step - loss: 7.9886 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.0174 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7894 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.9775 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7424 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 0.8517 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.6998 - accu
1549/1549 [==============================] - 6s 4ms/step - loss: 1.9004 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.9941 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 1.0060 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7285 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.5630 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7688 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.6708 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8665 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.2173 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.9741 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.7990 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6818 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.4583 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7978 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.0258 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7881 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.2146 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7099 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 4.3833 - ac
173/173 [==============================] - 1s 3ms/step - loss: 4.2843 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.0677 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7534 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.4640 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7136 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.6086 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8303 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8699 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7682 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8409 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7089 - accu
1549/1549 [==============================] - 6s 4ms/step - loss: 1.0067 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8192 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.2619 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8130 - accu
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1549/1549 [==============================] - 6s 3ms/step - loss: 0.9738 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7131 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 0.9568 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8599 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 1.1407 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7679 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.9641 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7075 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8615 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7713 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.7899 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.6903 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.0283 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6955 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.9916 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7730 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.1398 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7083 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.1934 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7172 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.7782 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8010 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8932 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7174 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.7580 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6409 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 3.7869 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7941 - accu
1549/1549 [==============================] - 6s 4ms/step - loss: 0.7512 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6068 - accu
1549/1549 [==============================] - 6s 4ms/step - loss: 1.8422 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7345 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.5328 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7962 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 2.9986 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7220 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.6843 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7617 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.4168 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7201 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.1299 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7871 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.2142 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7059 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.2073 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.6923 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.6895 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6062 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.7438 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7428 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.3716 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7364 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8123 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7164 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.3156 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7007 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.4783 - ac
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173/173 [==============================] - 1s 3ms/step - loss: 0.8247 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.6437 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6986 - accu
1549/1549 [==============================] - 6s 4ms/step - loss: 1.5447 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.9136 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 4.1472 - ac
173/173 [==============================] - 1s 2ms/step - loss: 4.0763 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.4597 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8211 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 4.5349 - ac
173/173 [==============================] - 1s 3ms/step - loss: 4.3524 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.2944 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.9688 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.1581 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7561 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.9791 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8781 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 4.1982 - ac
173/173 [==============================] - 1s 3ms/step - loss: 4.0555 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8496 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7685 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.7503 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7081 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.6768 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7564 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 5.0541 - ac
173/173 [==============================] - 1s 3ms/step - loss: 4.1802 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.7386 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6841 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.9952 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7561 - accu
1549/1549 [==============================] - 6s 4ms/step - loss: 4.1581 - ac
173/173 [==============================] - 1s 2ms/step - loss: 4.1698 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.9526 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7320 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.0887 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6842 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.1369 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7125 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.1607 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8704 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.1791 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8327 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.3347 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7700 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 3.0828 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7112 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.3121 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7410 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8971 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8175 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.3884 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6714 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.4936 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7401 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8555 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7394 - accu
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1549/1549 [==============================] - 6s 3ms/step - loss: 0.7514 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7068 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.2016 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7319 - accu
1549/1549 [==============================] - 6s 4ms/step - loss: 0.9241 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8163 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.4790 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.9122 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.7115 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6399 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.2331 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8875 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.9873 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7631 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.0846 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7890 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.0967 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7392 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8177 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7294 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.6313 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7069 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.0407 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7510 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 4.3306 - ac
173/173 [==============================] - 1s 3ms/step - loss: 4.2391 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.9395 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7502 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.4070 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7812 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 3.1629 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8262 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.0837 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8317 - accu
1549/1549 [==============================] - 6s 4ms/step - loss: 4.4296 - ac
173/173 [==============================] - 1s 3ms/step - loss: 4.2924 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.7818 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8237 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.3938 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7201 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8712 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7463 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.9618 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7434 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.9457 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6872 - accu
1549/1549 [==============================] - 6s 4ms/step - loss: 2.0917 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7310 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.2713 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7729 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 3.1055 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.9032 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.1276 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8599 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.1958 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7488 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.7679 - ac
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173/173 [==============================] - 1s 3ms/step - loss: 0.7053 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.6073 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7239 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.5966 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7331 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.0886 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7827 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.9111 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7084 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 4.1267 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8640 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8158 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7774 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.0767 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7140 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.6422 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8434 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.9559 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7661 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 4.8500 - ac
173/173 [==============================] - 1s 3ms/step - loss: 4.2236 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8774 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7643 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.0363 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8082 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 4.2962 - ac
173/173 [==============================] - 1s 3ms/step - loss: 4.1201 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 1.0687 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.8530 - accu
1549/1549 [==============================] - 5s 3ms/step - loss: 1.7650 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7987 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 4.4505 - ac
173/173 [==============================] - 1s 2ms/step - loss: 4.1554 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.0312 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8092 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8976 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.8184 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8340 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7394 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.8110 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7872 - accu
1549/1549 [==============================] - 6s 4ms/step - loss: 4.0006 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.9551 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 3.3239 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7327 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 4.2717 - ac
173/173 [==============================] - 1s 3ms/step - loss: 4.0550 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.4380 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6990 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.5240 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.8696 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.7786 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7004 - accu
1549/1549 [==============================] - 6s 4ms/step - loss: 1.2601 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7686 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 4.2057 - ac
173/173 [==============================] - 1s 3ms/step - loss: 4.1351 - accu
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1549/1549 [==============================] - 6s 3ms/step - loss: 1.0948 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7558 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.5154 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7264 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 3.1756 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8234 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.3822 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7219 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.6133 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7780 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.9147 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7918 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.5738 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7890 - accu
1549/1549 [==============================] - 6s 4ms/step - loss: 3.5475 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.9056 - accu
1549/1549 [==============================] - 6s 4ms/step - loss: 2.7920 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7913 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 4.2619 - ac
173/173 [==============================] - 1s 3ms/step - loss: 3.8897 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.6894 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7864 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8397 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6189 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.0087 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8192 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.6284 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7158 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.2608 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8450 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.3644 - ac
173/173 [==============================] - 1s 3ms/step - loss: 1.1514 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.5055 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.8397 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 3.5552 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8985 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.3902 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7448 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.2242 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7378 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 4.2008 - ac
173/173 [==============================] - 1s 3ms/step - loss: 4.2072 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.5396 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8149 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 4.3661 - ac
173/173 [==============================] - 1s 3ms/step - loss: 4.2642 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8520 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7639 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.0399 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7074 - accu
1549/1549 [==============================] - 6s 4ms/step - loss: 1.8949 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7155 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.8466 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7354 - accu
1549/1549 [==============================] - 6s 4ms/step - loss: 0.8400 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7217 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.9553 - ac
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173/173 [==============================] - 1s 3ms/step - loss: 0.7925 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 2.3000 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7248 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.0494 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.6240 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.0574 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.8188 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.9533 - ac
173/173 [==============================] - 1s 2ms/step - loss: 0.7078 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 0.7966 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7367 - accu
1549/1549 [==============================] - 6s 4ms/step - loss: 1.4516 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7579 - accu
1549/1549 [==============================] - 6s 3ms/step - loss: 1.0116 - ac
173/173 [==============================] - 1s 3ms/step - loss: 0.7900 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 2.2041 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7071 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 2.1917 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7102 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.7688 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6399 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.3878 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7937 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 4.0691 - a
345/345 [==============================] - 1s 3ms/step - loss: 4.0912 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.1491 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7872 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.6388 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7774 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 4.0270 - a
345/345 [==============================] - 1s 3ms/step - loss: 1.0036 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.7959 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6963 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 3.3397 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7643 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.0189 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6947 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.9564 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7073 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 4.3895 - a
345/345 [==============================] - 1s 3ms/step - loss: 4.1679 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.0824 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6870 - accu
3097/3097 [==============================] - 12s 3ms/step - loss: 1.2191 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6906 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 3.7228 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7934 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 3.2531 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.9693 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 1.7097 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7254 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 3.0202 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7477 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 0.7203 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6182 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.7965 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6468 - accu
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3097/3097 [==============================] - 11s 3ms/step - loss: 1.1409 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6755 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.2374 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.8163 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.9151 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7514 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.6423 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7070 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.7760 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6308 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.8871 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6800 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 3.0500 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.8831 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.0363 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6545 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.7736 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6856 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.0571 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7172 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.9438 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7887 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 1.3415 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7554 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 0.8393 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6913 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.8186 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6846 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.8994 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7191 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 0.7540 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6776 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 1.3029 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7758 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 1.0065 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6737 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 3.0318 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.9445 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 1.6649 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.8068 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 0.8352 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7445 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 1.5137 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6347 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 0.7793 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7192 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 1.1202 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6879 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 0.8355 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6486 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.8943 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6490 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.7974 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6607 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.9140 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.5966 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.9556 - a
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345/345 [==============================] - 1s 3ms/step - loss: 0.6850 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.8125 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6184 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.6255 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7272 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 1.4836 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7132 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 0.9057 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7927 - accu
3097/3097 [==============================] - 13s 4ms/step - loss: 0.9318 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6250 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 3.7954 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7616 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 1.6742 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6972 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 0.9719 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7017 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 2.0721 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7936 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 1.3447 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6549 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 4.2808 - a
345/345 [==============================] - 1s 3ms/step - loss: 3.9027 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 0.8147 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7565 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 2.1629 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7536 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 4.3328 - a
345/345 [==============================] - 1s 3ms/step - loss: 1.0991 - accu
3097/3097 [==============================] - 12s 3ms/step - loss: 2.3272 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7727 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 0.8448 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6484 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 1.4267 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6345 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.2282 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7255 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 0.8594 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7720 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.7154 - a
345/345 [==============================] - 1s 2ms/step - loss: 0.7743 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.7211 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6635 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 2.8803 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7295 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.3313 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7278 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.9820 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7170 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.6783 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7057 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.0098 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7440 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 1.7740 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7420 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 3.9192 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.8013 - accu
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3097/3097 [==============================] - 11s 3ms/step - loss: 1.1432 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6721 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.9888 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7469 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 3.5519 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7318 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.2018 - a
345/345 [==============================] - 1s 2ms/step - loss: 0.7362 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.1345 - a
345/345 [==============================] - 1s 2ms/step - loss: 0.6941 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.2995 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6552 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.9793 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7645 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 7.7556 - a
345/345 [==============================] - 1s 3ms/step - loss: 7.5892 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.9205 - a
345/345 [==============================] - 1s 2ms/step - loss: 0.6868 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.8401 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6868 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 2.6730 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7973 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.8623 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6557 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.0017 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7018 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.7933 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7550 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.8546 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7332 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 2.2066 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6575 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.5265 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7424 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 2.1939 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.8305 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.9869 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7276 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.8520 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7141 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.4787 - a
345/345 [==============================] - 1s 2ms/step - loss: 0.7083 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.0654 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6736 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.0896 - a
345/345 [==============================] - 1s 2ms/step - loss: 0.6518 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.2517 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7101 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.3975 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7755 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.8730 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6717 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.8339 - a
345/345 [==============================] - 1s 2ms/step - loss: 0.6628 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 2.7397 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6389 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.1061 - a
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345/345 [==============================] - 1s 3ms/step - loss: 0.7284 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 1.3880 - a
345/345 [==============================] - 1s 2ms/step - loss: 0.7252 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.3619 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.8040 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.8729 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7003 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.8941 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7094 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.9497 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7535 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 3.5464 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7422 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.9002 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7601 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.8951 - a
345/345 [==============================] - 1s 2ms/step - loss: 0.7574 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 1.8318 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6669 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.1227 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7443 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.7607 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6713 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.0352 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7701 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.0995 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7201 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 4.5952 - a
345/345 [==============================] - 1s 3ms/step - loss: 4.3834 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 2.3364 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.9137 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 4.1456 - a
345/345 [==============================] - 1s 3ms/step - loss: 3.9988 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 4.3837 - a
345/345 [==============================] - 1s 3ms/step - loss: 4.2743 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.6938 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6353 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 4.2358 - a
345/345 [==============================] - 1s 3ms/step - loss: 3.9274 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.7611 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6814 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 4.3801 - a
345/345 [==============================] - 1s 3ms/step - loss: 4.2865 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 7.3974 - a
345/345 [==============================] - 1s 3ms/step - loss: 3.5970 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 2.4252 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.8504 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 3.4204 - a
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3097/3097 [==============================] - 11s 3ms/step - loss: 4.4150 - a
345/345 [==============================] - 1s 3ms/step - loss: 4.1844 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.2686 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7461 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 4.1532 - a
345/345 [==============================] - 1s 3ms/step - loss: 3.9209 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.0700 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7455 - accu
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3097/3097 [==============================] - 11s 3ms/step - loss: 0.8060 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6837 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.9201 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7192 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 4.4558 - a
345/345 [==============================] - 1s 3ms/step - loss: 4.2480 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.8633 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7792 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.7637 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6496 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.7539 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6551 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 4.5900 - a
345/345 [==============================] - 1s 3ms/step - loss: 4.2117 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 3.6586 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.8096 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 1.4734 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7112 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.7467 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6548 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 0.9877 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.5934 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.4795 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6632 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.9776 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6113 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.8249 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7328 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 2.5909 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7665 - accu
3097/3097 [==============================] - 13s 4ms/step - loss: 0.7268 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6014 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.7382 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6720 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.8843 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6035 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 1.0237 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7378 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.9474 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7203 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.0698 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7627 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.0113 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7476 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.4583 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6935 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 1.0961 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7637 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.7120 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6659 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 2.7818 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.9133 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.5735 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6997 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.6253 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.5493 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.9178 - a
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345/345 [==============================] - 1s 3ms/step - loss: 0.7463 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.1500 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7180 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 1.1892 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7837 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 1.0412 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7128 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.6887 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6181 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.1212 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7268 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.1812 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.8068 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.7203 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6038 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.9498 - a
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3097/3097 [==============================] - 11s 3ms/step - loss: 3.2771 - a
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3097/3097 [==============================] - 12s 4ms/step - loss: 0.7322 - a
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3097/3097 [==============================] - 11s 3ms/step - loss: 1.0326 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7395 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.8265 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7309 - accu
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3097/3097 [==============================] - 12s 3ms/step - loss: 1.5606 - a
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3097/3097 [==============================] - 11s 3ms/step - loss: 1.2850 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6431 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 4.3869 - a
345/345 [==============================] - 1s 3ms/step - loss: 4.2462 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 3.8917 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7813 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 1.0770 - a
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3097/3097 [==============================] - 11s 4ms/step - loss: 1.9661 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6957 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 1.2131 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7311 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 6.4801 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.9031 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 3.0827 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.8262 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 2.1626 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.8955 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 3.5264 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.9522 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 1.2198 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7417 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 2.3967 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7732 - accu
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3097/3097 [==============================] - 11s 4ms/step - loss: 3.7854 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.9226 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.3781 - a
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3097/3097 [==============================] - 11s 3ms/step - loss: 1.5622 - a
345/345 [==============================] - 1s 3ms/step - loss: 1.3642 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 0.8547 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7156 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.5232 - a
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3097/3097 [==============================] - 11s 3ms/step - loss: 1.0393 - a
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3097/3097 [==============================] - 11s 3ms/step - loss: 1.1839 - a
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3097/3097 [==============================] - 11s 3ms/step - loss: 0.7439 - a
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3097/3097 [==============================] - 11s 3ms/step - loss: 1.0792 - a
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3097/3097 [==============================] - 13s 4ms/step - loss: 1.2402 - a
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3097/3097 [==============================] - 11s 3ms/step - loss: 1.7227 - a
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3097/3097 [==============================] - 11s 3ms/step - loss: 1.1166 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7544 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.6773 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7625 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.6816 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6970 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 1.1975 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6629 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.8626 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6741 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.0155 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7248 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.7053 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6757 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.6993 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6335 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.8292 - a
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345/345 [==============================] - 1s 3ms/step - loss: 0.7333 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.3161 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6959 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.4132 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7190 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.8786 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6698 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.0005 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7252 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.9940 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7706 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 3.9191 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7919 - accu
3097/3097 [==============================] - 12s 3ms/step - loss: 1.1439 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.8120 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.8606 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6953 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.9102 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7155 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.7937 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6576 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.2810 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7178 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 1.5321 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.8039 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.9747 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7435 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.7256 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6509 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 1.2174 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7109 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 1.0403 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6506 - accu
3097/3097 [==============================] - 11s 3ms/step - loss: 0.9399 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7560 - accu
3097/3097 [==============================] - 12s 4ms/step - loss: 0.9509 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.7179 - accu
3097/3097 [==============================] - 11s 4ms/step - loss: 0.7900 - a
345/345 [==============================] - 1s 3ms/step - loss: 0.6682 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 0.9425 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6745 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 1.9396 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7318 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 2.2812 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7892 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 3.1183 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7164 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 2.1053 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8011 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 1.0877 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8538 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 1.4236 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7658 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 0.9297 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6917 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 4.4840 - ac
269/269 [==============================] - 1s 3ms/step - loss: 4.2708 - accu
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2420/2420 [==============================] - 9s 3ms/step - loss: 2.0891 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7322 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.3100 - ac
269/269 [==============================] - 1s 4ms/step - loss: 0.7513 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.2804 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.9559 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 0.7949 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7446 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 0.7505 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6888 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 4.5950 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8098 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 1.4685 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6941 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 1.4774 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7922 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7318 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6818 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 7.7522 - ac
269/269 [==============================] - 1s 3ms/step - loss: 7.6246 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.0501 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8085 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 0.7216 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6268 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.1502 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8283 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 2.6181 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7376 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.9099 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8186 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7855 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7112 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.8976 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7440 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 1.2820 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7267 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.5532 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8402 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.8254 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7301 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 4.4415 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.9075 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.9145 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6350 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 0.8465 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6665 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 0.9224 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7497 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.9506 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7797 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 3.1294 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7479 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 2.4017 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6565 - accu
2420/2420 [==============================] - 10s 4ms/step - loss: 1.1956 - a
269/269 [==============================] - 1s 3ms/step - loss: 0.9199 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 3.6522 - ac
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269/269 [==============================] - 1s 3ms/step - loss: 0.9187 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 3.5893 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7756 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 3.4079 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7334 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 1.2066 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6935 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 5.5248 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.9170 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.0976 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6781 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.7406 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7007 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 1.1440 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7991 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.3450 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7326 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 2.6895 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6530 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 1.1114 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8923 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 1.2949 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7071 - accu
2420/2420 [==============================] - 10s 4ms/step - loss: 1.1578 - a
269/269 [==============================] - 1s 3ms/step - loss: 0.8388 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 0.7688 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6128 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 1.6159 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8066 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.8541 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6929 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.8846 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6891 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 1.0633 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6374 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.6954 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.9215 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.4972 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7135 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.8222 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7267 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.8015 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6684 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.0208 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7828 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.2694 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7051 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.8570 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6952 - accu
2420/2420 [==============================] - 10s 4ms/step - loss: 4.1539 - a
269/269 [==============================] - 1s 3ms/step - loss: 4.0631 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.6716 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7813 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.9165 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8008 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 3.8219 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7945 - accu
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2420/2420 [==============================] - 9s 4ms/step - loss: 4.2862 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7755 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 2.4339 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6972 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.2400 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8251 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.0433 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6455 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 1.2499 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6928 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.6425 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6114 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 3.0321 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7670 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 1.0822 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6970 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7533 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6748 - accu
2420/2420 [==============================] - 11s 4ms/step - loss: 1.3460 - a
269/269 [==============================] - 1s 3ms/step - loss: 0.6496 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 5.9380 - ac
269/269 [==============================] - 1s 3ms/step - loss: 4.0883 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.3251 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7322 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.8645 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7905 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 4.3176 - ac
269/269 [==============================] - 1s 3ms/step - loss: 4.3047 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.8368 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6444 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7467 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6649 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.8734 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6745 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.9751 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7786 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.9375 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7726 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.9143 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7502 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.9435 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8032 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.1739 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8530 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.9844 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6835 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.0288 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7762 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 5.7808 - ac
269/269 [==============================] - 1s 3ms/step - loss: 4.2590 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.1171 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6561 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.5790 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8841 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 3.4929 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8242 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 2.0241 - ac
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269/269 [==============================] - 1s 3ms/step - loss: 0.6573 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.2395 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8503 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 3.6333 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.9650 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.2781 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7741 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 4.2253 - ac
269/269 [==============================] - 1s 3ms/step - loss: 4.0668 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.8851 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7265 - accu
2420/2420 [==============================] - 10s 4ms/step - loss: 3.5936 - a
269/269 [==============================] - 1s 3ms/step - loss: 0.8812 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7396 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6993 - accu
2420/2420 [==============================] - 10s 4ms/step - loss: 0.7902 - a
269/269 [==============================] - 1s 3ms/step - loss: 0.6978 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.6314 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7085 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.1705 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7632 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 2.8439 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6907 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 4.3694 - ac
269/269 [==============================] - 1s 3ms/step - loss: 4.2474 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.8182 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7454 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.0297 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8133 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7457 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6164 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 2.7338 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7980 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.3780 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7857 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.1471 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6382 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.0074 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6678 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.4103 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7208 - accu
2420/2420 [==============================] - 10s 4ms/step - loss: 1.9531 - a
269/269 [==============================] - 1s 3ms/step - loss: 0.7924 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 3.1597 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7434 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.7100 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7613 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.9037 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6666 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7439 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6877 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.0586 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7034 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.7039 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7534 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 4.9827 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.9312 - accu
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2420/2420 [==============================] - 9s 4ms/step - loss: 1.9265 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8361 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.2275 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8811 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.2688 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7040 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.2608 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7803 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7685 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6413 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 4.3767 - ac
269/269 [==============================] - 1s 3ms/step - loss: 3.9574 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 2.3687 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7260 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.5400 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6616 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 2.1561 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7920 - accu
2420/2420 [==============================] - 9s 3ms/step - loss: 1.0701 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7586 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.9692 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7325 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 2.3119 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6672 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 2.2959 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7828 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7648 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7126 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.1325 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8155 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.1439 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7481 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.0109 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7686 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.0635 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6951 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.5667 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6977 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.5816 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7639 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.1382 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7657 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 2.1882 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8177 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.0860 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7198 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.0468 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6969 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7820 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7283 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.0722 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6897 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.9590 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6669 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.8630 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7050 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.0600 - ac
```

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269/269 [==============================] - 1s 3ms/step - loss: 0.7412 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.0837 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6750 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.2103 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6965 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 2.6614 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7576 - accu
2420/2420 [==============================] - 10s 4ms/step - loss: 2.9901 - a
269/269 [==============================] - 1s 3ms/step - loss: 0.7109 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.2053 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8015 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.8343 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7077 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 4.0193 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7853 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.9701 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7607 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7545 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6503 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.5513 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6102 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.1531 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7623 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7755 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6746 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7635 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6620 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 4.2397 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6672 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7551 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6661 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.9252 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6748 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.1722 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7804 - accu
2420/2420 [==============================] - 10s 4ms/step - loss: 0.8302 - a
269/269 [==============================] - 1s 3ms/step - loss: 0.6924 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.9487 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7782 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7560 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6149 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7625 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6471 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.0083 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7007 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 2.0905 - ac
269/269 [==============================] - 1s 3ms/step - loss: 3.9020 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 4.2871 - ac
269/269 [==============================] - 1s 3ms/step - loss: 4.0651 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.1636 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6900 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.8005 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7144 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.8036 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6776 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.9997 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7122 - accu
```

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2420/2420 [==============================] - 9s 4ms/step - loss: 3.8734 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8127 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 4.2388 - ac
269/269 [==============================] - 1s 3ms/step - loss: 4.0489 - accu
2420/2420 [==============================] - 10s 4ms/step - loss: 4.2044 - a
269/269 [==============================] - 1s 3ms/step - loss: 1.1088 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.3643 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7002 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 4.3538 - ac
269/269 [==============================] - 1s 3ms/step - loss: 3.9518 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.8739 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7736 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 6.1049 - ac
269/269 [==============================] - 1s 3ms/step - loss: 3.4282 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 3.3498 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7588 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 4.1481 - ac
269/269 [==============================] - 1s 3ms/step - loss: 3.9875 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.1922 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.9387 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.1729 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7213 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 4.6253 - ac
269/269 [==============================] - 1s 3ms/step - loss: 4.1452 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 3.9272 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7030 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 2.7747 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.9830 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 6.3316 - ac
269/269 [==============================] - 1s 3ms/step - loss: 3.9913 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.8136 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7357 - accu
2420/2420 [==============================] - 10s 4ms/step - loss: 1.1345 - a
269/269 [==============================] - 1s 3ms/step - loss: 0.8282 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 7.7377 - ac
269/269 [==============================] - 1s 3ms/step - loss: 7.7555 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 4.0805 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6766 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.7453 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8023 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 4.3133 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8904 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.9346 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8219 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 3.1462 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8230 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.1444 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7554 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.9429 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6193 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 2.2054 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7616 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 2.9797 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7736 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.7158 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7409 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 3.1861 - ac
```

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269/269 [==============================] - 1s 3ms/step - loss: 0.8957 - accu
2420/2420 [==============================] - 10s 4ms/step - loss: 0.9219 - a
269/269 [==============================] - 1s 3ms/step - loss: 0.7649 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.8351 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6436 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.8613 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7651 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 2.0379 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7107 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 4.3710 - ac
269/269 [==============================] - 1s 3ms/step - loss: 3.9610 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7689 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6705 - accu
2420/2420 [==============================] - 10s 4ms/step - loss: 0.8507 - a
269/269 [==============================] - 1s 3ms/step - loss: 0.7757 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.2214 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7038 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7594 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6487 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7825 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6640 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.8068 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.8763 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.1040 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6301 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.8683 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7227 - accu
2420/2420 [==============================] - 10s 4ms/step - loss: 4.3060 - a
269/269 [==============================] - 1s 3ms/step - loss: 4.2471 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 3.4614 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7172 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7437 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6437 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.7783 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6514 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.9131 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6681 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 2.5651 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.9036 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.5989 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6950 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 2.7983 - ac
269/269 [==============================] - 1s 3ms/step - loss: 4.3148 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 3.4742 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7260 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.8278 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7514 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 2.4135 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7304 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.9603 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7602 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.1310 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7477 - accu
2420/2420 [==============================] - 10s 4ms/step - loss: 0.7833 - a
269/269 [==============================] - 1s 3ms/step - loss: 0.7068 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 0.8437 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7197 - accu
```

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2420/2420 [==============================] - 9s 4ms/step - loss: 0.9688 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7501 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 2.3581 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.6813 - accu
2420/2420 [==============================] - 9s 4ms/step - loss: 1.0587 - ac
269/269 [==============================] - 1s 3ms/step - loss: 0.7509 - accu
4302/4302 [==============================] - 16s 4ms/step - loss: 1.7652 - a
```

In [ ]:

```
best_params=fit.best_params_
accuracy=fit.best_score_
```

In [ ]:

```
best_params
```

Out[ ]:

```
{'batch_size': 20, 'nb_epoch': 200, 'unit': 15}
```

In [ ]:

```
accuracy
```

Out[ ]:

```
0.6489305555820465
```

In [ ]:

```
Unit = 15

# creating the layers of the NN
ann = tf.keras.models.Sequential()
ann.add(tf.keras.layers.Dense(units=15, activation='tanh'))
ann.add(tf.keras.layers.Dense(units=15, activation='relu'))
ann.add(tf.keras.layers.Dense(units=1, activation='linear'))
ann.compile(optimizer = 'adam', loss = 'binary_crossentropy', metrics = ['ac
```

In [ ]:

```
model=KerasClassifier(build_fn=ann, batch_size = 20, nb_epoch = 200)
```

```
<ipython-input-36-547324f8013c>:1: DeprecationWarning: KerasClassifier is de
  model=KerasClassifier(build_fn=ann, batch_size = 20, nb_epoch = 200)
```

In [ ]:

```
model.fit(X_train, y_train)
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
<ipython-input-37-d768f88d541e> in <module>
----> 1 model.fit(X_train, y_train)

/usr/local/lib/python3.8/dist-packages/keras/wrappers/scikit_learn.py in fit
    234       raise ValueError('Invalid shape for y: ' + str(y.shape))
    235     self.n_classes_ = len(self.classes_)
--> 236     return super(KerasClassifier, self).fit(x, y, **kwargs)
    237 
    238   def predict(self, x, **kwargs):

/usr/local/lib/python3.8/dist-packages/keras/wrappers/scikit_learn.py in fit
    150     elif (not isinstance(self.build_fn, types.FunctionType) and
    151           not isinstance(self.build_fn, types.MethodType)):
--> 152       self.model = self.build_fn(
    153           **self.filter_sk_params(self.build_fn.__call__))
    154     else:

/usr/local/lib/python3.8/dist-packages/keras/utils/traceback_utils.py in err
     65     except Exception as e:  # pylint: disable=broad-except
     66       filtered_tb = _process_traceback_frames(e.__traceback__)
---> 67       raise e.with_traceback(filtered_tb) from None
     68     finally:
     69       del filtered_tb

/usr/local/lib/python3.8/dist-packages/keras/engine/base_layer.py in _split_
   3098       inputs = kwargs.pop(self._call_fn_args[0])
   3099     else:
-> 3100       raise ValueError(
   3101           'The first argument to `Layer.call` must always be passed.
   3102     return inputs, args, kwargs

ValueError: The first argument to `Layer.call` must always be passed.
```