

Sprint-1

Image

Preprocessing

Date	29 October 2022
Team ID	PNT2022PMID16515
Project Name	AI-powered Nutrition Analyzer for Fitness Enthusiasts
Maximum Marks	

Dataset:

- In our dataset we have collected images of the five variety of fruits.
 - Apple
 - Orange
 - Pineapple
 - Watermelon
 - Banana

Drive link : https://drive.google.com/file/d/1jzDjV7jYclzllieagaJdubMJ3YeLsry1/view?usp=share_link

Image Preprocessing:

- **Importing The ImageDataGenerator Library**
from keras.preprocessing.image import ImageDataGenerator
- **Configuring ImageDataGenerator Class**
train_datagen =
ImageDataGenerator(rescale=1./255,shear_range=0.2,zoom_range=0.2,horizontal_flip=True)
test_datagen=ImageDataGenerator(rescale=1./255)
- **Applying Image DataGenerator Functionality To Trainset And Testset**
x_train =
train_datagen.flow_from_directory(r'/content/Dataset/TRAIN_SET',
target_size=(64,
64),batch_size=5,color_mode='rgb',class_mode='sparse')
x_test = test_datagen.flow_from_directory(r'/content/Dataset/TEST_SET',
target_size=(64,
64),batch_size=5,color_mode='rgb',class_mode='sparse')

Data Collection:

Download the dataset [here](#)

```
# Unzipping the dataset
!unzip '/content/Dataset.zip'

  inflating:
  Dataset/TRAIN_SET/WATERMELON/r_288_100.j
  pginflating:
  Dataset/TRAIN_SET/WATERMELON/r_289_100.j
  pginflating:
  Dataset/TRAIN_SET/WATERMELON/r_28_100.jp
  g inflating:
  Dataset/TRAIN_SET/WATERMELON/r_290_100.j
  pginflating:
  Dataset/TRAIN_SET/WATERMELON/r_291_100.j
  pginflating:
  Dataset/TRAIN_SET/WATERMELON/r_292_100.j
  pginflating:
  Dataset/TRAIN_SET/WATERMELON/r_293_100.j
  pginflating:
  Dataset/TRAIN_SET/WATERMELON/r_294_100.j
  pginflating:
  Dataset/TRAIN_SET/WATERMELON/r_295_100.j
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  Dataset/TRAIN_SET/WATERMELON/r_296_100.j
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  Dataset/TRAIN_SET/WATERMELON/r_297_100.j
  pginflating:
  Dataset/TRAIN_SET/WATERMELON/r_298_100.j
  pginflating:
  Dataset/TRAIN_SET/WATERMELON/r_299_100.j
  pginflating:
  Dataset/TRAIN_SET/WATERMELON/r_29_100.jp
  g inflating:
  Dataset/TRAIN_SET/WATERMELON/r_2_100.jpg
  inflating:
  Dataset/TRAIN_SET/WATERMELON/r_300_100.j
  pginflating:
  Dataset/TRAIN_SET/WATERMELON/r_301_100.j
  pginflating:
  Dataset/TRAIN_SET/WATERMELON/r_302_100.j
  pginflating:
  Dataset/TRAIN_SET/WATERMELON/r_303_100.j
```

pginflating:
Dataset/TRAIN_SET/WATERMELON/r_304_100.j
pginflating:
Dataset/TRAIN_SET/WATERMELON/r_305_100.j
pginflating:
Dataset/TRAIN_SET/WATERMELON/r_306_100.j
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Dataset/TRAIN_SET/WATERMELON/r_307_100.j
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inflating:
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ginflating:
Dataset/TRAIN_SET/WATERMELON/r_38_100.jp
ginflating:
Dataset/TRAIN_SET/WATERMELON/r_39_100.jp
ginflating:
Dataset/TRAIN_SET/WATERMELON/r_3_100.jpg
inflating:
Dataset/TRAIN_SET/WATERMELON/r_40_100.jp

```
ginflating:
Dataset/TRAIN_SET/WATERMELON/r_41_100.jp
ginflating:
Dataset/TRAIN_SET/WATERMELON/r_42_100.jp
ginflating:
Dataset/TRAIN_SET/WATERMELON/r_43_100.jp
ginflating:
Dataset/TRAIN_SET/WATERMELON/r_44_100.jp
ginflating:
Dataset/TRAIN_SET/WATERMELON/r_45_100.jp
g
```

```
inflating:
Dataset/TRAIN_SET/WATERMELON/r_46_100.j
pginflating:
Dataset/TRAIN_SET/WATERMELON/r_4_100.jp
g inflating:
Dataset/TRAIN_SET/WATERMELON/r_50_100.j
pginflating:
Dataset/TRAIN_SET/WATERMELON/r_57_100.j
pginflating:
Dataset/TRAIN_SET/WATERMELON/r_5_100.jp
g inflating:
Dataset/TRAIN_SET/WATERMELON/r_6_100.jp
g inflating:
Dataset/TRAIN_SET/WATERMELON/r_7_100.jp
g inflating:
Dataset/TRAIN_SET/WATERMELON/r_81_100.j
pginflating:
Dataset/TRAIN_SET/WATERMELON/r_8_100.jp
g inflating:
Dataset/TRAIN_SET/WATERMELON/r_9_100.jp
g
```

Image Preprocessing

```
#Importing The ImageDataGenerator Library
from keras.preprocessing.image import ImageDataGenerator
```

Image Data Augmentation

```
#Configure ImageDataGenerator Class
```

```

train_datagen =
ImageDataGenerator(rescale=1./255,shear_range=0.2,zoom_range=0.2,horizontal
test_datagen=ImageDataGenerator(rescale=1./255)

```

Applying Image DataGenerator Functionality To TrainsetAndTestset

```

#Applying Image DataGenerator Functionality To
Trainset And Testset
x_train =
train_datagen.flow_from_directory(
    r'/content/Dataset/TRAIN_SET',
    target_size=(64,
64),batch_size=5,color_mode='rgb',class_mode='sparse')
#Applying Image DataGenerator Functionality To Testset
x_test =
    test_datagen.flow_from_directory(
    r'/content/Dataset/TEST_SET',
    target_size=(64, 64),batch_size=5,color_mode='rgb',class_mode='sparse')

    Found 4118 images belonging
    to 5 classes.Found 929
    images belonging to 5
    classes.

#checking the
number of classes
print(x_train.class_indices)

{'APPLES': 0, 'BANANA': 1, 'ORANGE': 2, 'PINEAPPLE': 3, 'WATERMELON': 4}

#checking the
number of classes
print(x_test.class_indices)

{'APPLES': 0, 'BANANA': 1, 'ORANGE': 2, 'PINEAPPLE': 3, 'WATERMELON': 4}

```

```
from collections import  
Counter as cc(x_train  
.labels)
```

```
Counter({0: 995, 1: 1354, 2: 1019, 3: 275, 4: 475})
```

● [Colab HYPERLINK](#)

"https://colab.research.google.com/signup?utm_source=footer&utm_medium=link&utm_campaign=footer_links"

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