

Sprint-1

Image Preprocessing

| | |
|---------------|--|
| Date | 29 October 2022 |
| Team ID | PNT2022TMID41475 |
| Project Name | AI-powered Nutrition Analyzer for FitnessEnthusiasts |
| 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
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Dataset/TRAIN_SET/WATERMELON/r_294_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
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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
pg
inflating:
Dataset/TRAIN_SET/WATERMELON/r_301_100.j
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inflating:
Dataset/TRAIN_SET/WATERMELON/r_302_100.j
pg
inflating:
Dataset/TRAIN_SET/WATERMELON/r_303_100.j
pg
inflating:
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Dataset/TRAIN_SET/WATERMELON/r_304_100.j
pg inflating:
Dataset/TRAIN_SET/WATERMELON/r_305_100.j
pg inflating:
Dataset/TRAIN_SET/WATERMELON/r_306_100.j
pg inflating:
Dataset/TRAIN_SET/WATERMELON/r_307_100.j
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Dataset/TRAIN_SET/WATERMELON/r_308_100.j
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inflating:
Dataset/TRAIN_SET/WATERMELON/r_309_100.j
pginflating:
Dataset/TRAIN_SET/WATERMELON/r_30_100.jp
g inflating:
Dataset/TRAIN_SET/WATERMELON/r_310_100.j
pginflating:
Dataset/TRAIN_SET/WATERMELON/r_311_100.j
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Dataset/TRAIN_SET/WATERMELON/r_313_100.j
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Dataset/TRAIN_SET/WATERMELON/r_315_100.j
pginflating:
Dataset/TRAIN_SET/WATERMELON/r_31_100.jp
g inflating:
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Dataset/TRAIN_SET/WATERMELON/r_39_100.jp
g inflating:
Dataset/TRAIN_SET/WATERMELON/r_3_100.jpg
inflating:
Dataset/TRAIN_SET/WATERMELON/r_40_100.j
pg inflating:

```
Dataset/TRAIN_SET/WATERMELON/r_41_100.j
pg          inflating:
Dataset/TRAIN_SET/WATERMELON/r_42_100.j
pg          inflating:
Dataset/TRAIN_SET/WATERMELON/r_43_100.j
pg          inflating:
Dataset/TRAIN_SET/WATERMELON/r_44_100.j
pg          inflating:
Dataset/TRAIN_SET/WATERMELON/r_45_100.j
pg
```

```
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,horizontala
test_datagen=ImageDataGenerator(rescale=1./255)
```

Applying Image DataGenerator Functionality To TrainsetAnd Testset

```
#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
s_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

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"https://colab.research.google.com/cancel-subscription" [here](#)