Sprint-1

Image Preprocessig

Date	08 November 2022
Team ID	PNT2022TMID10397
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/1aR6AwH5KtwMchyfG3PK8cth5dIPMkdu7/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
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       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:
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       pg                              inflating:
       Dataset/TRAIN_SET/WATERMELON/r_302_100.j
       pg                              inflating:
       Dataset/TRAIN_SET/WATERMELON/r_303_100.j
       pg                              inflating:
```

```
Dataset/TRAIN_SET/WATERMELON/r_304_100.j
pg                              inflating:
Dataset/TRAIN_SET/WATERMELON/r_305_100.j
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Dataset/TRAIN_SET/WATERMELON/r_306_100.j
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Dataset/TRAIN_SET/WATERMELON/r_307_100.j
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Dataset/TRAIN_SET/WATERMELON/r_308_100.j
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Dataset/TRAIN_SET/WATERMELON/r_310_100.j
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Dataset/TRAIN_SET/WATERMELON/r_31_100.jp
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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
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Dataset/TRAIN_SET/WATERMELON/r_42_100.j
pg                              inflating:
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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,horizonta
test_datagen=ImageDataGenerator(rescale=1./255)
```

Applying Image DataGenerator Functionality To TrainsetAnd Testset

```
#Applying Image DataGenerator Functionality To
Trainset And Testsetx_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_di
    rectory(
    r'/content/Dataset/TEST_S
    ET',
    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.clas
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})
```

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