Sprint-1

Image Preprocessing

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/1jzDjV7jYcIzlIieagaJdubMJ3YeLsry1/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,horizont al_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.jpg
        inflating:       Dataset/TRAIN_SET/WATERMELON/r_289_100.jpg       inflating:
        Dataset/TRAIN_SET/WATERMELON/r_28_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_290_100.jpg                        inflating:
        Dataset/TRAIN_SET/WATERMELON/r_291_100.jpg                        inflating:
        Dataset/TRAIN_SET/WATERMELON/r_292_100.jpg                        inflating:
        Dataset/TRAIN_SET/WATERMELON/r_293_100.jpg                        inflating:
        Dataset/TRAIN_SET/WATERMELON/r_294_100.jpg                        inflating:
        Dataset/TRAIN_SET/WATERMELON/r_295_100.jpg                        inflating:
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        Dataset/TRAIN_SET/WATERMELON/r_297_100.jpg                        inflating:
        Dataset/TRAIN_SET/WATERMELON/r_298_100.jpg                        inflating:
        Dataset/TRAIN_SET/WATERMELON/r_299_100.jpg                        inflating:
        Dataset/TRAIN_SET/WATERMELON/r_29_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_2_100.jpg                          inflating:
        Dataset/TRAIN_SET/WATERMELON/r_300_100.jpg                        inflating:
        Dataset/TRAIN_SET/WATERMELON/r_301_100.jpg                        inflating:
        Dataset/TRAIN_SET/WATERMELON/r_302_100.jpg                        inflating:
        Dataset/TRAIN_SET/WATERMELON/r_303_100.jpg                        inflating:
        Dataset/TRAIN_SET/WATERMELON/r_304_100.jpg                        inflating:
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        Dataset/TRAIN_SET/WATERMELON/r_30_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_310_100.jpg                        inflating:
        Dataset/TRAIN_SET/WATERMELON/r_311_100.jpg                        inflating:
        Dataset/TRAIN_SET/WATERMELON/r_312_100.jpg                        inflating:
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        Dataset/TRAIN_SET/WATERMELON/r_314_100.jpg                        inflating:
        Dataset/TRAIN_SET/WATERMELON/r_315_100.jpg                        inflating:
        Dataset/TRAIN_SET/WATERMELON/r_31_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_32_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_33_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_34_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_35_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_36_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_37_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_38_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_39_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_3_100.jpg                          inflating:
        Dataset/TRAIN_SET/WATERMELON/r_40_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_41_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_42_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_43_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_44_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_45_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_46_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_4_100.jpg                          inflating:
        Dataset/TRAIN_SET/WATERMELON/r_50_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_57_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_5_100.jpg                          inflating:
        Dataset/TRAIN_SET/WATERMELON/r_6_100.jpg                          inflating:
        Dataset/TRAIN_SET/WATERMELON/r_7_100.jpg                          inflating:
        Dataset/TRAIN_SET/WATERMELON/r_81_100.jpg                         inflating:
        Dataset/TRAIN_SET/WATERMELON/r_8_100.jpg                          inflating:
        Dataset/TRAIN_SET/WATERMELON/r_9_100.jpg
```

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 Trainset And 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_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 c c(x_train
.labels)
```

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

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