AI-Powered Nutrition Analyzer For Fitness Enthusiasts

Dataset:

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

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

```
# 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:
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        Dataset/TRAIN_SET/WATERMELON/r_290_100.j
        pginflating:
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        pginflating:
        Dataset/TRAIN_SET/WATERMELON/r_299_100.j
        pginflating:
        Dataset/TRAIN_SET/WATERMELON/r_29_100.jp
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        Dataset/TRAIN_SET/WATERMELON/r_302_100.j
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        Dataset/TRAIN_SET/WATERMELON/r_303_100.j
        pg   inflating:

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Dataset/TRAIN_SET/WATERMELON/r_304_100.j
pg                          inflating:
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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_309_100.j
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g inflating:
Dataset/TRAIN_SET/WATERMELON/r_310_100.j
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Dataset/TRAIN_SET/WATERMELON/r_311_100.j
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g inflating:
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pg                          inflating:
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                    Dataset/TRAIN_SET/WATERMELON/r_44_100.j
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                    pginflating:
                    Dataset/TRAIN_SET/WATERMELON/r_4_100.jp
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                    Dataset/TRAIN_SET/WATERMELON/r_50_100.j
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                    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})