

Sprint -3

Date	5 November 2022
Team ID	PNT2022TMID13870
Project Name	Project - AI-Powered Nutrition Analyzer for Fitness Enthusiasts

Data Collection

Drive Link : https://drive.google.com/drive/folders/1Fs-MwaF5qmHZi6-xn_IHNMLiuBYuWVn0

Download the dataset using the above given link

Unzipping the dataset

```
!unzip '/content/Dataset.zip'
```

```
inflating: Dataset/TRAIN_SET/PINEAPPLE/33_100.jpg
```

```
inflating: Dataset/TRAIN_SET/PINEAPPLE/34_100.jpg
```

```
inflating: Dataset/TRAIN_SET/PINEAPPLE/35_100.jpg
```

```
inflating: Dataset/TRAIN_SET/PINEAPPLE/36_100.jpg
```

inflating: Dataset/TRAIN_SET/PINEAPPLE/37_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/38_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/39_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/40_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/41_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/42_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/43_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/44_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/45_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/46_100.jpg inflating:

Dataset/TRAIN_SET/PINEAPPLE/47_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/48_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/49_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/4_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/50_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/51_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/52_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/53_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/54_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/55_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/56_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/57_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/58_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/59_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/5_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/60_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/61_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/62_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/63_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/64_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/65_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/66_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/67_100.jpg

inflating: Dataset/TRAIN_SET/PINEAPPLE/68_100.jpg

creating: Dataset/TRAIN_SET/WATERMELON/

inflating: Dataset/TRAIN_SET/WATERMELON/0_100.jpg

inflating: Dataset/TRAIN_SET/WATERMELON/100_100.jpg

Image ProProcessing

Importing the ImageDataGenerator Library

```
import numpy as np
```

```
import tensorflow as tf
```

```
from tensorflow.keras.models import Sequential

from tensorflow.keras import layers

from tensorflow.keras.layers import Dense, Flatten

from tensorflow.keras.layers import Conv2D, MaxPooling2D, Dropout

from keras.preprocessing.image import ImageDataGenerator
```

Config 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

```
#Applying Image DataGenerator Functionality To Trainset And Testset
```

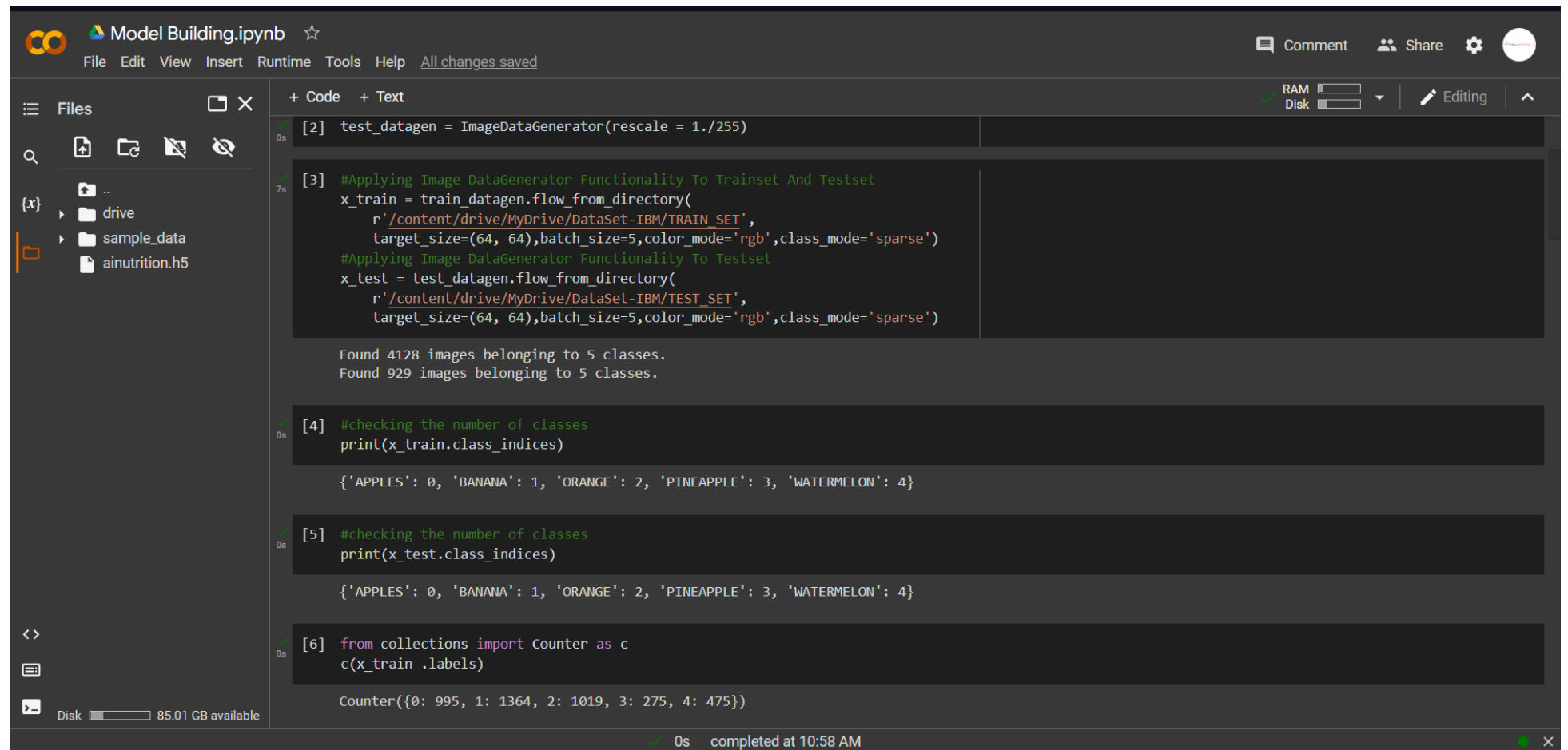
```
x_train = train_datagen.flow_from_directory(r'/content/drive/MyDrive/DataSet-IBM/TRAIN_SET',  
target_size=(64, 64),batch_size=5,color_mode='rgb',class_mode='sparse')
```

#Applying Image DataGenerator Functionality To Testset

```
x_test = test_datagen.flow_from_directory( r'/content/drive/MyDrive/DataSet-IBM/TEST_SET',  
target_size=(64, 64),batch_size=5,color_mode='rgb',class_mode='sparse')
```

```
Found 4128 images belonging to 5 classes.  
Found 929 images belonging to 5 classes.
```

Image PreProcessing



The screenshot displays a Jupyter Notebook titled "Model Building.ipynb" with a dark theme. The interface includes a top menu bar (File, Edit, View, Insert, Runtime, Tools, Help), a left sidebar for file management, and a main area for code execution. The code is organized into six cells, each with a green checkmark indicating successful execution. Cell [2] initializes an ImageDataGenerator. Cell [3] applies the generator to train and test sets. Cell [4] prints the class indices for the training set. Cell [5] prints the class indices for the test set. Cell [6] counts the number of images per class. The output of the notebook shows the number of images found for each class and the resulting class indices for both sets.

```
[2] test_datagen = ImageDataGenerator(rescale = 1./255)
```

```
[3] #Applying Image DataGenerator Functionality To Trainset And Testset
x_train = train_datagen.flow_from_directory(
    r'/content/drive/MyDrive/DataSet-IBM/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/drive/MyDrive/DataSet-IBM/TEST_SET',
    target_size=(64, 64),batch_size=5,color_mode='rgb',class_mode='sparse')
```

Found 4128 images belonging to 5 classes.
Found 929 images belonging to 5 classes.

```
[4] #checking the number of classes
print(x_train.class_indices)
```

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

```
[5] #checking the number of classes
print(x_test.class_indices)
```

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

```
[6] from collections import Counter as c
c(x_train .labels)
```

```
Counter({0: 995, 1: 1364, 2: 1019, 3: 275, 4: 475})
```

0s completed at 10:58 AM