AI Powered Nutrition Analyzer for Fitness Enthusiasts

Project development phase

Sprint 1

Date	**15.11.22**
Team ID	**PNT2022TMID37915**
Project name	**AI Powered Nutrition Analyzer for Fitness Enthusiasts**

In [1]:
```
from google.colab import drive
drive.mount('/content/drive')
```

```
Mounted at /content/drive
```

In [3]:
```
ls
```

```
drive/  sample_data/
```

In [5]:
```
cd//content/drive/MyDrive/Colab Notebooks/Dataset
```

```
/content/drive/.shortcut-targets-by-id/1LL5lvl6AsdVwW9LWVu_GXEUCoV7jYm-c/Dataset
```

In [6]:
```
ls
```

```
IBM_review.pptx  photo-1589820296156-2454bb8a6ad1.jpg  TRAIN_SET/
nutrition.h5     TEST_SET/
```

Importing Neccessary Libraries

In [7]:
```
import numpy as np#used for numerical analysis
import tensorflow #open source used for both ML and DL for computation
from tensorflow.keras.models import Sequential #it is a plain stack of layers
from tensorflow.keras import layers #A layer consists of a tensor-in tensor-out computation function
#Dense layer is the regular deeply connected neural network layer
from tensorflow.keras.layers import Dense,Flatten
#Faltten-used fot flattening the input or change the dimension
from tensorflow.keras.layers import Conv2D,MaxPooling2D,Dropout #Convolutional layer
#MaxPooling2D-for downsampling the image
from keras.preprocessing.image import ImageDataGenerator
```

Image Data Agumentation

In [8]:
```
#setting parameter for Image Data agumentation to the training data
train_datagen = ImageDataGenerator(rescale=1./255,shear_range=0.2,zoom_range=0.2,horizontal_flip=True)
#Image Data agumentation to the testing data
test_datagen=ImageDataGenerator(rescale=1./255)
```

Loading our data and performing data agumentation

In [9]:
```
#performing data agumentation to train data
x_train = train_datagen.flow_from_directory(
    r'/content/drive/MyDrive/Colab Notebooks/Dataset/TRAIN_SET',
    target_size=(64, 64),batch_size=5,color_mode='rgb',class_mode='sparse')
#performing data agumentation to test data
x_test = test_datagen.flow_from_directory(
    r'/content/drive/MyDrive/Colab Notebooks/Dataset/TEST_SET',
    target_size=(64, 64),batch_size=5,color_mode='rgb',class_mode='sparse')
```

```
Found 4138 images belonging to 5 classes.
Found 929 images belonging to 3 classes.
```

In [10]:
```
print(x_train.class_indices)#checking the number of classes
```

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

In [11]:
```
print(x_test.class_indices)#checking the number of classes
```

```
{'APPLES': 0, 'BANANA': 1, 'ORANGE': 2}
```

In [12]:
```
from collections import Counter as c
c(x_train .labels)
```

In [12]:
```
from collections import Counter as c
c(x_train .labels)
```

Out[12]:
```
Counter({0: 995, 1: 1374, 2: 1019, 3: 275, 4: 475})
```