Final Code:

```
import pandas as pd

import cv2

import os

import numpy as np

import random

import pickle

import h5py as h5

train_data='/content/contentdriveMyDriveTRAIN_SET/MyDrive/TRAIN_SET'

test_data='/content/drive/MyDrive/TEST_SET-20221117T140252Z-001'

from keras.preprocessing.image import ImageDataGenerator

x_train =
train_datagen.flow_from_directory('/content/drive/MyDrive/TRAIN_SET',target_size=(64,64),batch_
size=5,color_mode='rgb',class_mode='sparse')

x_test = test_datagen.flow_from_directory('/content/drive/MyDrive/TEST_SET-20221117T140252Z-
001',target_size=(64,64),batch_size=5,color_mode='rgb',class_mode='sparse')

print(x_train.class_indices)

print(x_test.class_indices)

from collections import Counter as c

c(x_train .labels)

import numpy as np

import tensorflow

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


model=Sequential()

classifier = Sequential()

classifier.add(Conv2D(32,(3,3), input_shape=(64,64,3), activation='relu'))

classifier.add(MaxPooling2D(pool_size=(2,2)))
```

```
classifier.add(Conv2D(32,(3,3),activation='relu'))

classifier.add(MaxPooling2D(pool_size=(2,2)))

classifier.add(Flatten())

classifier.summary()

classifier.compile(optimizer='adam', loss='sparse_categorical_crossentropy', metrics=['accuracy'])

classifier.fit_generator(generator=x_train,steps_per_epoch = len(x_train), epochs=20,
validation_data=x_test, validation_steps=len(x_test))

classifier.save('nutrition.h5')

from tensorflow.keras.models import load_model

from keras.preprocessing import image

model = load_model("nutrition.h5")

from tensorflow.keras.preprocessing import imagea

img = image.load_img('/content/drive/MyDrive/TEST_SET-20221117T140252Z-
001/TEST_SET/APPLES/152_100.jpg',grayscale=False,target_size= (64,64))

x = image.img_to_array(img)

x = np.expand_dims(x,axis = 0)

pred = np.argmax(model.predict(x),axis=1)

pred

index=['APPLES', 'BANANA', 'ORANGE', 'PINEAPPLE', 'WATERMELON']

result=str(index[pred[0]])

result
```

Start.html:

```
<!DOCTYPE html>

<html>

<head>

<style>

ul {

  list-style-type: none;

  margin: 0;

  padding:12;
```

```
 overflow: hidden;
 background-color:       #DC143C;
}
body
{ background-repeat: no-repeat;

 background-size: cover;

}
p {
 padding: 75px;
}
li a {
 display: block;
 color: black;
 text-align: center;
 padding: 14px 20px;
 text-decoration: none;
}

li a:hover:not(.active) {
 background-color:#E6E6FA;
}

.active {
 background-color: #E6E6FA;
}
</style>
</head>
<body background="https://img.freepik.com/free-photo/assorted-fruit-yellow-background_23-2148145132.jpg?w=1060&t=st=1668762152~exp=1668762752~hmac=b8355791e6fd0ff3fe1069463a6ef99f92a518d4ee2e51a795c9398878fea2eb">
```

```
<ul>
 <li style=" float: left;" ><h2>Nutrition Image Analysis</h2>
 <li style=" float: right;" ><a href="classify.html">Classify</a></li>
 <li style=" float: right;" ><a href="start.html"
        class="active">Home</a></li>
</ul>
<p>
<center><img src="cpic.jpg" width="500" height="250"></center></p>

</body>
</html>
```

Classify.html:

```
<!DOCTYPE html>
<html>
<head>
<script>
var loadFile = function(event) {
        var image = document.getElementById('output');
        image.src = URL.createObjectURL(event.target.files[0]);
};
</script>
<script>
 var loadFile=function(event){
   var image=document.getElementById('output');
   image.src=URL.createObjectURL(event.target.files[0]);
 };
</script>
<style>
```

```
ul {
  list-style-type: none;
  margin: 0;
  padding:12;
  overflow: hidden;
  background-color:        #DC143C;
}
body
{ background-repeat: no-repeat;

 background-size: cover;

}

li a {
  display: block;
  color: black;
  text-align: center;
  padding: 14px 20px;
  text-decoration: none;
}
h3 {
  padding: 15px;
}


li a:hover:not(.active) {
  background-color:#E6E6FA;
}
a:link, a:visited {
  background-color: white;
```

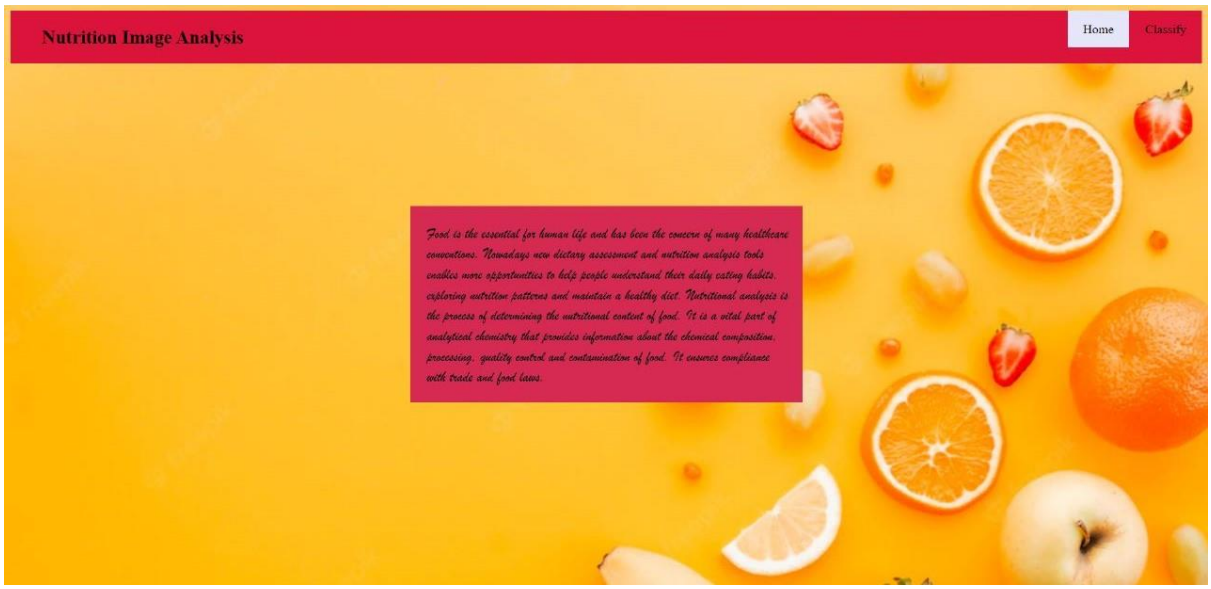
```
  color: black;
  padding: 14px 25px;
  text-align: center;
  text-decoration: none;
  display: inline-block;
}

a:hover, a:active {
  background-color:white;
}

.active {
  background-color: #E6E6FA;
}
.h2{
  font-family: 'Gill Sans', 'Gill Sans MT', Calibri, 'Trebuchet MS', sans-serif;
  color: blueviolet;
}
.file{
  width: 200px;
  height: 44px;
  display: flex;
  justify-content: center;
  align-items: center;
  color:white;
  background-color:#1db096;
  border-radius: 20px;
  box-shadow:5px 10px 30px rgba(24, 139, 119 ,0.2);
}

.fiile:hover{
```

```
 background-color: #23cdaf;
 transition: all ease 0.2s;
}

</style>
</head>
```

```
<body background="https://img.freepik.com/free-photo/assorted-fruit-yellow-background_23-2148145132.jpg?w=1060&t=st=1668762152~exp=1668762752~hmac=b8355791e6fd0ff3fe1069463a6ef99f92a518d4ee2e51a795c9398878fea2eb">

<ul>
 <li style=" float: left;" ><h2>Nutrition Image Analysis</h2>
 <li style=" float: right;" ><a href="classify.html">Classify</a></li>
 <li style=" float: right;" ><a href="start.html" class="active">Home</a></li>
</ul>
<h3 >Upload Image to Classify</h3><br>
<button>

 <p><input type="file"  accept="image/*" name="image" id="file"  onchange="loadFile(event)" style="display: none;"></p>
<h4><label for="file" style="cursor: pointer;">Choose</label></h4>

</button>
<p><img id="output" width="200" /></p>

<form action="/web" method="POST" enctype="multipart/form-data">
 <input type="submit" value="Submit">
</form>
```

</body>

</html>


Nutrition Image Analysis
Home
Classify
Food is the essential for human life and has been the concern of many healthcare conventions. Nowadays new dietary assessment and nutrition analysis tools enables more opportunities to help people understand their daily eating habits, exploring nutrition patterns and maintain a healthy diet. Nutritional analysis is the process of determining the nutritional content of food. It is a vital part of analytical chemistry that provides information about the chemical composition, processing, quality control and contamination of food. It ensures compliance with trade and food laws.


Nutrition Image Analysis
Home
Classify
Upload Image to Classify
Choose
Submit

Upload Image to Classify

Choose

Food classified is:

Apple

Sugar_g: 10.3
Fiber_g: 2.4
Serving size_g: 100.0
Sodium_mg: 1
Name: Apple
Potasium_mg: 11
Fat saturated_g: 0.0
Fat total_g: 0.2
Calories: 53.4
Cholestrol_mg: 0
Protein_g: 0.3
Carbonhydrates_total_g: 13.8