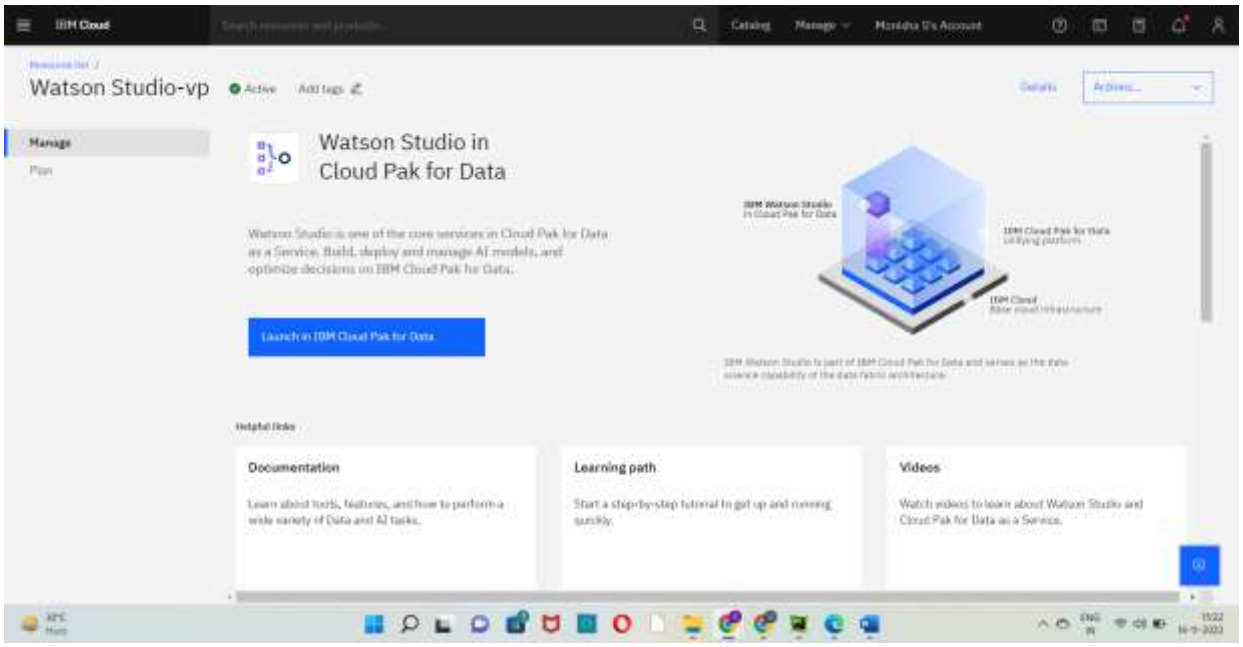
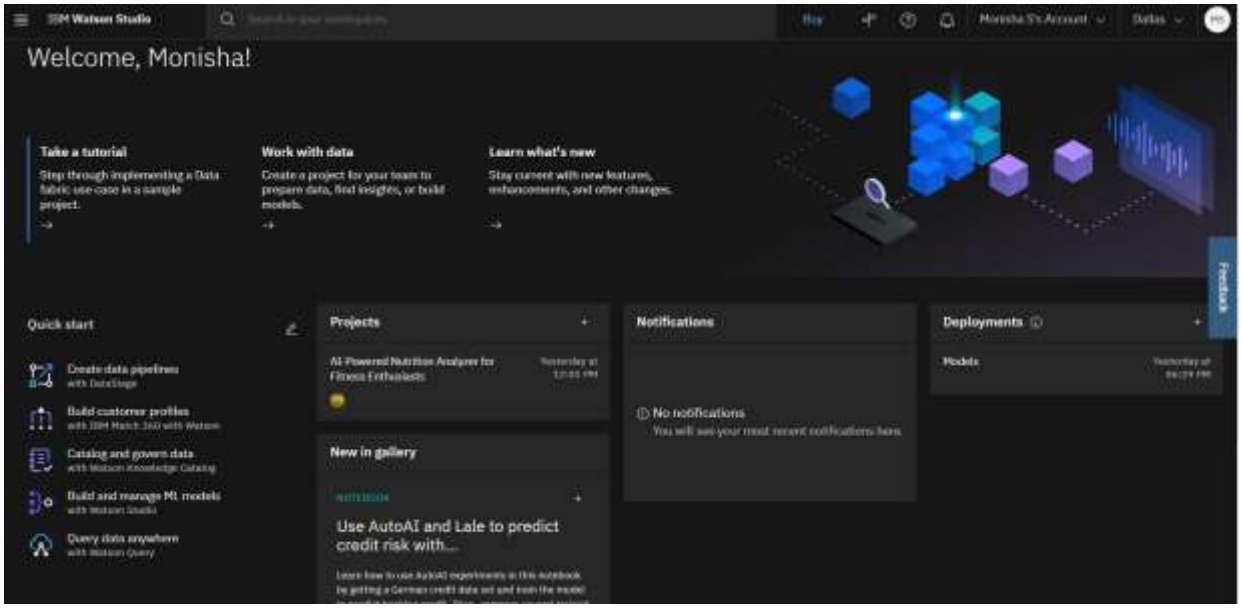
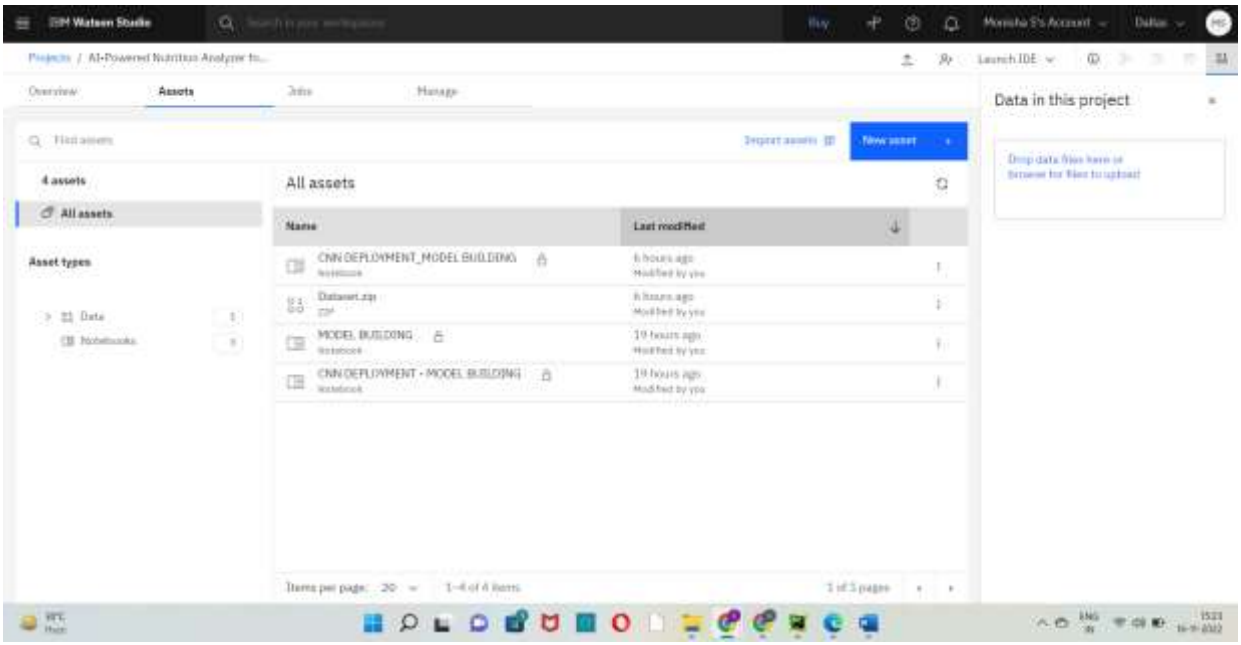
Train Model On IBM

TEAM ID : PNT2022TMID16369

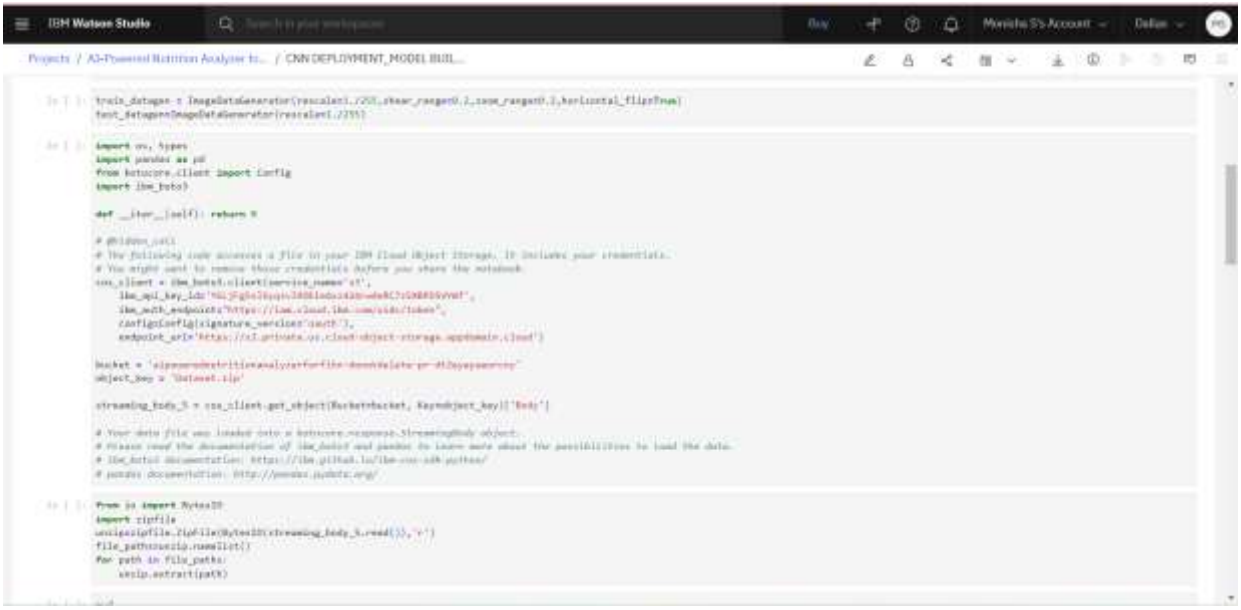
PROJECT NAME : AI-powered Nutrition Analyzer for Fitness Enthusiasts

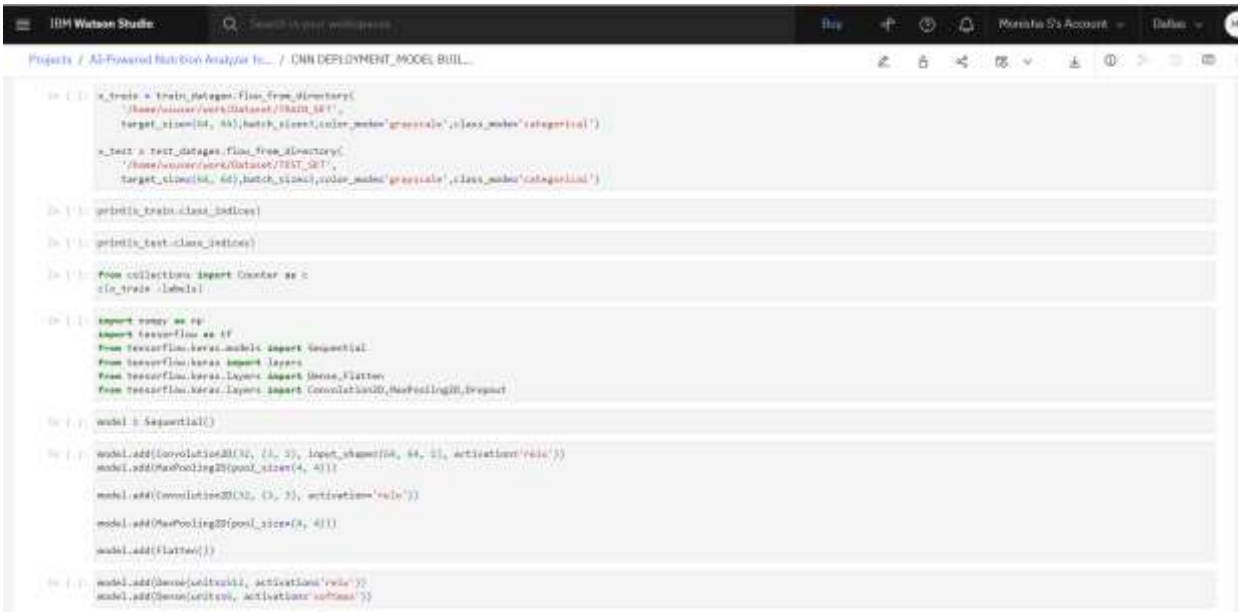





IBM Watson Studio
Projects / AI-Powered Nutrition Analyzer fo...
Launch IDE
Overview
Assets
Jobs
Manage
Data in this project
Import assets
New asset
4 assets
All assets
Asset types
Data
Notebooks
All assets
Name
Last modified
CNN DEPLOYMENT_MODEL BUILDING
6 hours ago
Modified by you
Dataset.zip
6 hours ago
Modified by you
MODEL BUILDING
19 hours ago
Modified by you
CNN DEPLOYMENT - MODEL BUILDING
19 hours ago
Modified by you
Items per page: 20
1-4 of 4 items
1 of 1 pages


Data Collection
Download the dataset here
In [55]: pwd
Out[55]: '/home/wsuser/work'
In [ ]:
In [179]: !pip install keras==2.7.0
!pip install tensorflow==2.7.0
Collecting keras==2.7.0
Using cached keras-2.7.0-py2.py3-none-any.whl (1.3 MB)
Installing collected packages: keras
Attempting uninstall: keras


IBM Watson Studio
Projects / AI-Powered Nutrition Analyzer fo... / CNN DEPLOYMENT_MODEL BUIL...
train_datagen = ImageDataGenerator(rescale=1./255,shear_range=0.2,zoom_range=0.2,horizontal_flip=True)
test_datagen=ImageDataGenerator(rescale=1./255)
import os, types
import pandas as pd
from botocore.client import Config
import ibm_boto3
def __iter__(self): return 0
# @hidden_cell
# The following code accesses a file in your IBM Cloud Object Storage. It includes your credentials.
# You might want to remove those credentials before you share the notebook.
cos_client = ibm_boto3.client(service_name='s3',
ibm_api_key_id='
ibm_auth_endpoint="https://iam.cloud.ibm.com/oidc/token",
config=Config(signature_version='oauth'),
endpoint_url='https://s3.private.us.cloud-object-storage.appdomain.cloud')
bucket = '
object_key = 'Dataset.zip'
streaming_body_5 = cos_client.get_object(Bucket=bucket, Key=object_key)['Body']
# Your data file was loaded into a botocore.response.StreamingBody object.
# Please read the documentation of ibm_boto3 and pandas to learn more about the possibilities to load the data.
# ibm_boto3 documentation: https://ibm.github.io/ibm-cos-sdk-python/
# pandas documentation: http://pandas.pydata.org/
from io import BytesIO
import zipfile
unzipped=zipfile.ZipFile(BytesIO(streaming_body_5.read()),'r')
file_paths=unzip.namelist()
for path in file_paths:
unzip.extract(path)


IBM Watson Studio
Projects / AI-Powered Nutrition Analyzer fo... / CNN DEPLOYMENT_MODEL BUIL...
x_train = train_datagen.flow_from_directory(
'/home/wsuser/work/Dataset/TRAIN_SET',
target_size=(64, 64),batch_size=3,color_mode='grayscale',class_mode='categorical')
x_test = test_datagen.flow_from_directory(
'/home/wsuser/work/Dataset/TEST_SET',
target_size=(64, 64),batch_size=3,color_mode='grayscale',class_mode='categorical')
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 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 Convolution2D,MaxPooling2D,Dropout
model = Sequential()
model.add(Convolution2D(32, (3, 3), input_shape=(64, 64, 1), activation='relu'))
model.add(MaxPooling2D(pool_size=(4, 4)))
model.add(Convolution2D(32, (3, 3), activation='relu'))
model.add(MaxPooling2D(pool_size=(4, 4)))
model.add(Flatten())
model.add(Dense(units=512, activation='relu'))
model.add(Dense(units=9, activation='softmax'))

```
model.summary()
```

```
Model: "sequential"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 conv2d (Conv2D)             (None, 62, 62, 32)        320

 max_pooling2d (MaxPooling2D  (None, 31, 31, 32)       0
 )

 conv2d_1 (Conv2D)           (None, 29, 29, 32)        9248

 max_pooling2d_1 (MaxPooling  (None, 14, 14, 32)       0
 2D)

 flatten (Flatten)           (None, 6272)              0

 dense (Dense)               (None, 512)               3211776

 dense_1 (Dense)             (None, 6)                 3078

=================================================================
Total params: 3,224,422
Trainable params: 3,224,422
Non-trainable params: 0
_________________________________________________________________
```

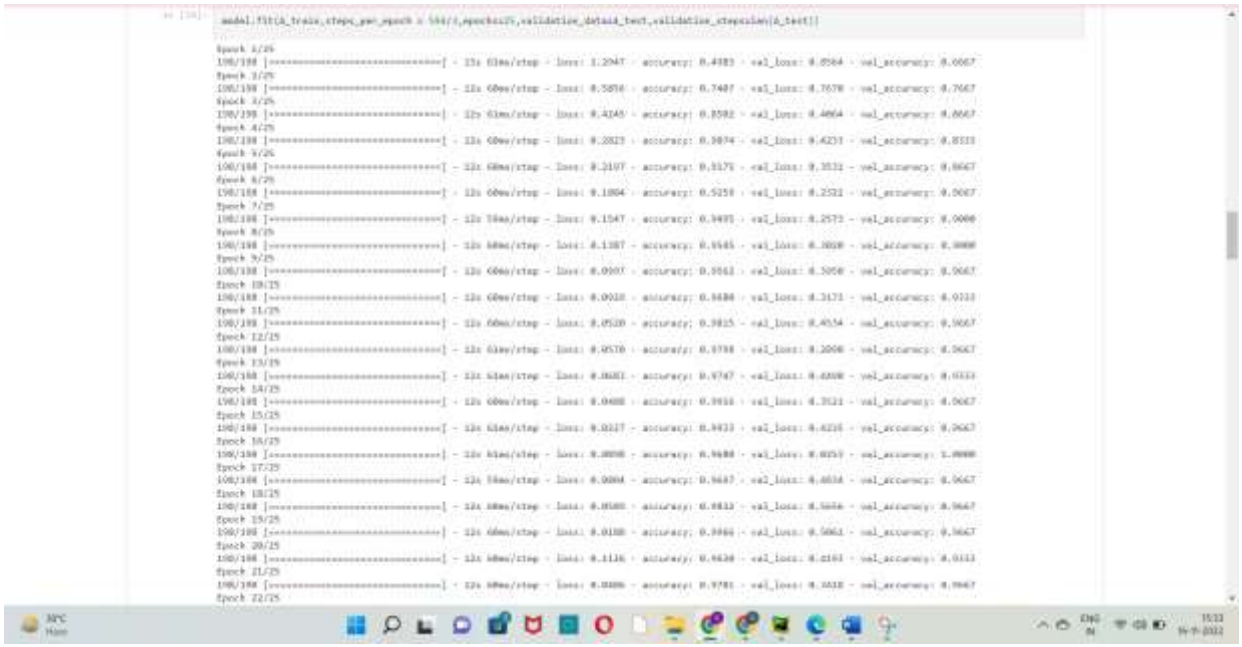
Compile the model

```
model.compile(metrics=['accuracy'],loss='categorical_crossentropy',optimizer='adam')
```

Train the model

```
model.fit(A_train,steps_per_epoch = 594/3,epochs=25,validation_data=A_test,validation_steps=len(A_test))
```

```
Epoch 1/25
198/198 [==============================] - 12s 61ms/step - loss: 1.2947 - accuracy: 0.4983 - val_loss: 0.8564 - val_accuracy: 0.6667
Epoch 2/25
198/198 [==============================] - 12s 60ms/step - loss: 0.5856 - accuracy: 0.7487 - val_loss: 0.7670 - val_accuracy: 0.7667
Epoch 3/25
198/198 [==============================] - 12s 61ms/step - loss: 0.4245 - accuracy: 0.8502 - val_loss: 0.4864 - val_accuracy: 0.8667
```



test the model

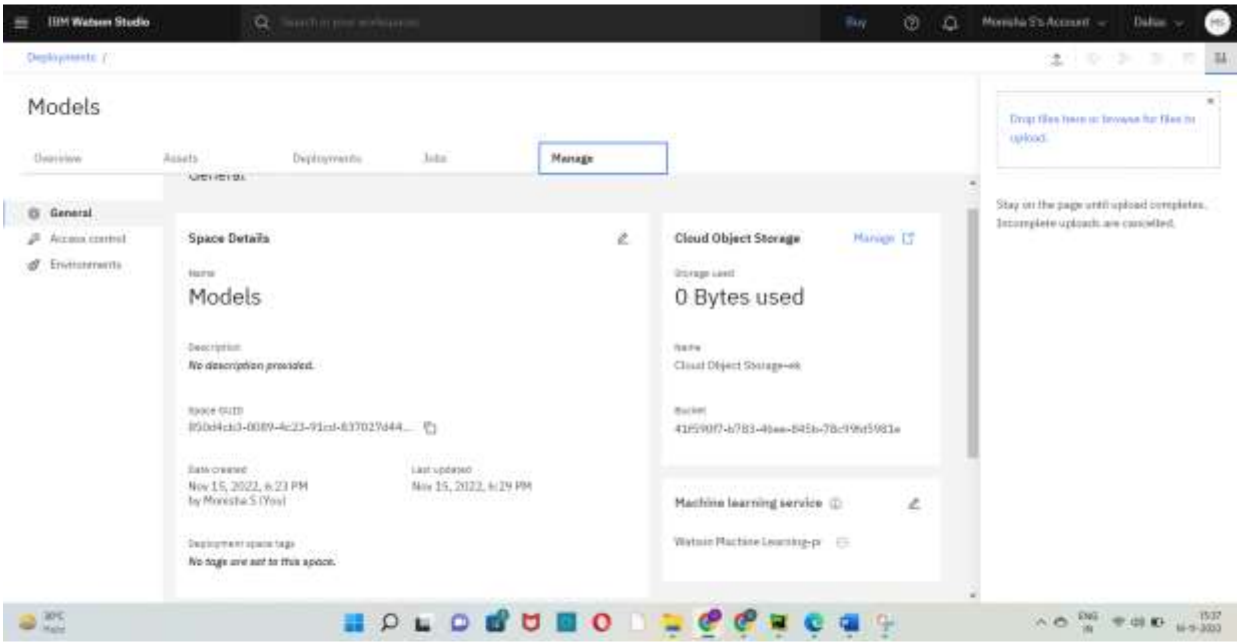
```
In [26]: !pip install watson-machine-learning-client --upgrade
```

```
Requirement already satisfied: watson-machine-learning-client in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (1.0.391)
Requirement already satisfied: certifi in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from watson-machine-learning-client) (2022.9.24)
Requirement already satisfied: ibm-cos-sdk in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from watson-machine-learning-client) (2.11.0)
Requirement already satisfied: lomond in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from watson-machine-learning-client) (0.3.3)
Requirement already satisfied: urllib3 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from watson-machine-learning-client) (1.26.7)
Requirement already satisfied: boto3 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from watson-machine-learning-client) (1.18.21)
Requirement already satisfied: pandas in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from watson-machine-learning-client) (1.3.4)
Requirement already satisfied: tqdm in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from watson-machine-learning-client) (4.62.3)
Requirement already satisfied: tabulate in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from watson-machine-learning-client) (0.8.9)
Requirement already satisfied: requests in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from watson-machine-learning-client) (2.26.0)
Requirement already satisfied: jmespath<1.0.0,>=0.7.1 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from boto3->watson-machine-learning-cl
ient) (0.10.0)
Requirement already satisfied: s3transfer<0.6.0,>=0.5.0 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from boto3->watson-machine-learning-
client) (0.5.0)
Requirement already satisfied: botocore<1.22.0,>=1.21.21 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from boto3->watson-machine-learning
-client) (1.21.41)
Requirement already satisfied: python-dateutil<3.0.0,>=2.1 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from botocore<1.22.0,>=1.21.21->b
oto3->watson-machine-learning-client) (2.8.2)
Requirement already satisfied: six>=1.5 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from python-dateutil<3.0.0,>=2.1->botocore<1.22.0,>=
1.21.21->boto3->watson-machine-learning-client) (1.15.0)
Requirement already satisfied: ibm-cos-sdk-s3transfer==2.11.0 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm-cos-sdk->watson-machi
ne-learning-client) (2.11.0)
Requirement already satisfied: ibm-cos-sdk-core==2.11.0 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm-cos-sdk->watson-machine-lea
rning-client) (2.11.0)
Requirement already satisfied: charset-normalizer~=2.0.0 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from requests->watson-machine-learn
ing-client) (2.0.4)
Requirement already satisfied: idna<4,>=2.5 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from requests->watson-machine-learning-client)
(3.3)
Requirement already satisfied: pytz>=2017.3 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from pandas->watson-machine-learning-client) (20
21.3)
Requirement already satisfied: numpy>=1.17.3 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from pandas->watson-machine-learning-client)
(1.20.3)
```

```
In [ ]: !pip install watson-machine-learning-client --upgrade
```

```
In [ ]: from ibm_watson_machine_learning import APIClient

        wml_credentials={
            "url" : "https://us-south.ml.cloud.ibm.com",
            "apikey" : "CIg5C4xrIcaD0QeBe_xxfyIrKHmkwOyN7RQvUL..."
        }
        client=APIClient(wml_credentials)
```



File Edit View Insert Cell Kernel Help

Not Trusted | Python 3.9

Run Format Markdown

```
In [ ]: client.repository.download(model_id, 'my_model.tar.gz')

In [ ]: from keras.models import load_model
        from keras.preprocessing import image

In [ ]: model=load_model("nutrition.h5")

In [ ]:

In [ ]:

In [ ]:

In [ ]:

In [ ]:

In [ ]: from tensorflow.keras.models import load_model
        from keras.preprocessing import image
        model = load_model("nutrition.h5")

In [ ]: import numpy as np
        x = image.img_to_array(img)
```

Data

Files Connections

Upload one file at a time. All file types accepted. 5 GB max file size.

Drag and drop files here or upload.

Dataset.zip

Insert to code

File Edit View Insert Cell Kernel Help

Not Trusted | Python 3.9

Run Format Markdown

```
In [ ]:

In [ ]: from tensorflow.keras.models import load_model
        from keras.preprocessing import image
        model = load_model("nutrition.h5")

In [ ]: import numpy as np
        x = image.img_to_array(img)

        x = np.expand_dims(x,axis = 0)
        predict_x=model.predict(x)
        classes_x=np.argmax(predict_x,axis=-1)
        classes_x

        1/1 [==============================] - 0s 290ms/step

Out[58]: array([0])

In [ ]: index=['APPLES', 'BANANA', 'ORANGE','PINEAPPLE','WATERMELON']
        result=str(index[classes_x[0]])
        result
```

Data

Files Connections

Upload one file at a time. All file types accepted. 5 GB max file size.

Drag and drop files here or upload.

Dataset.zip

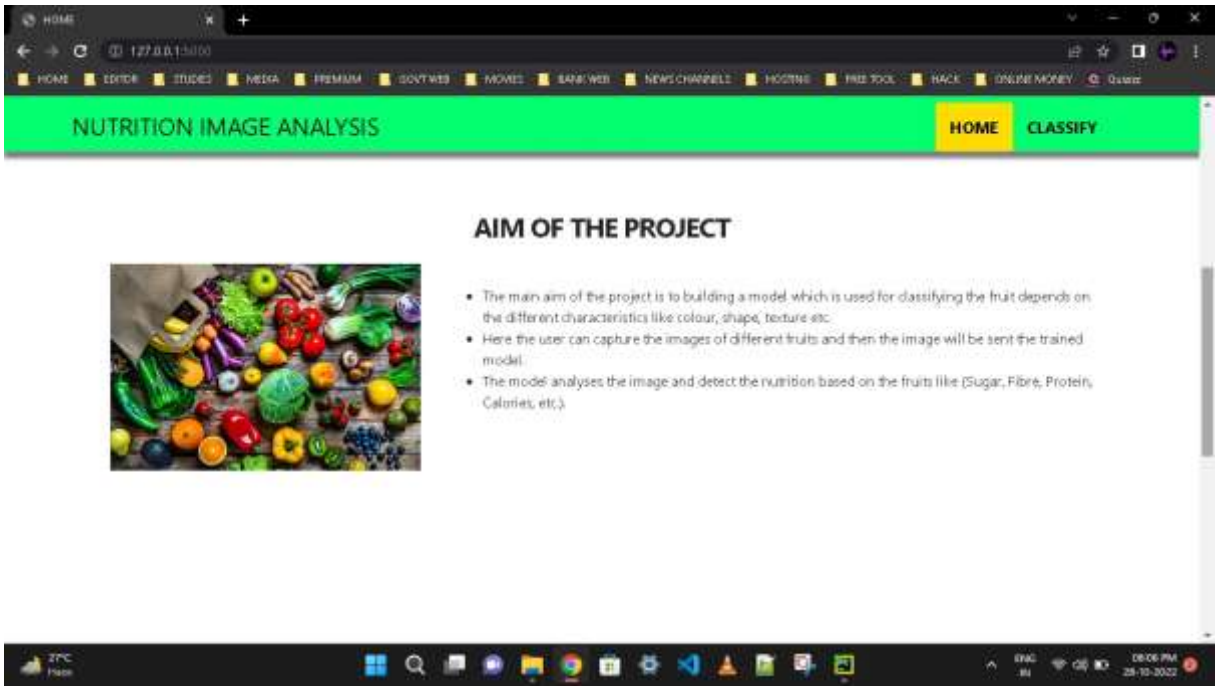
Insert to code

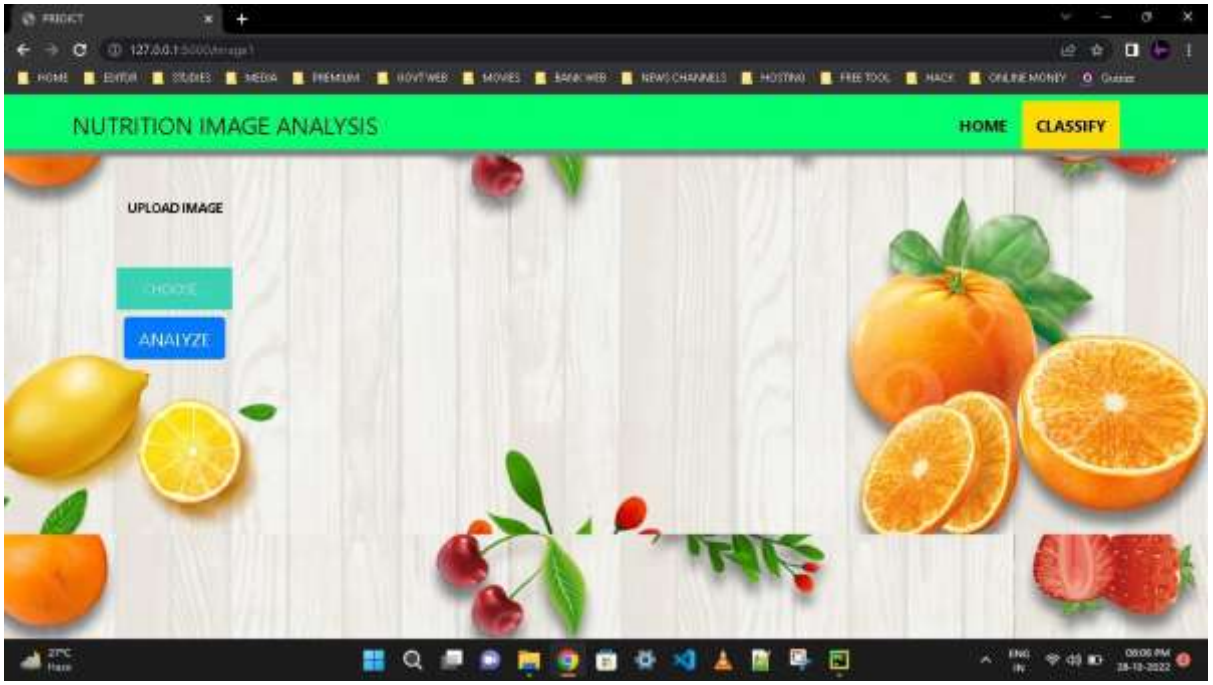
21°C Humid

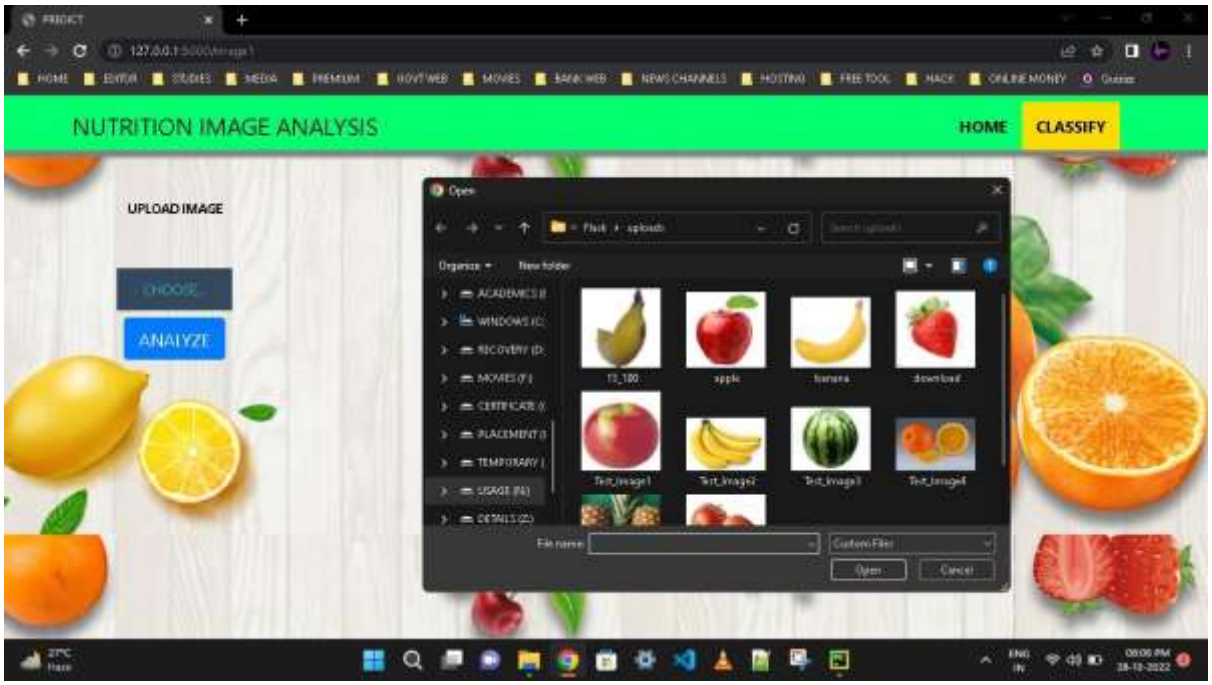
Search

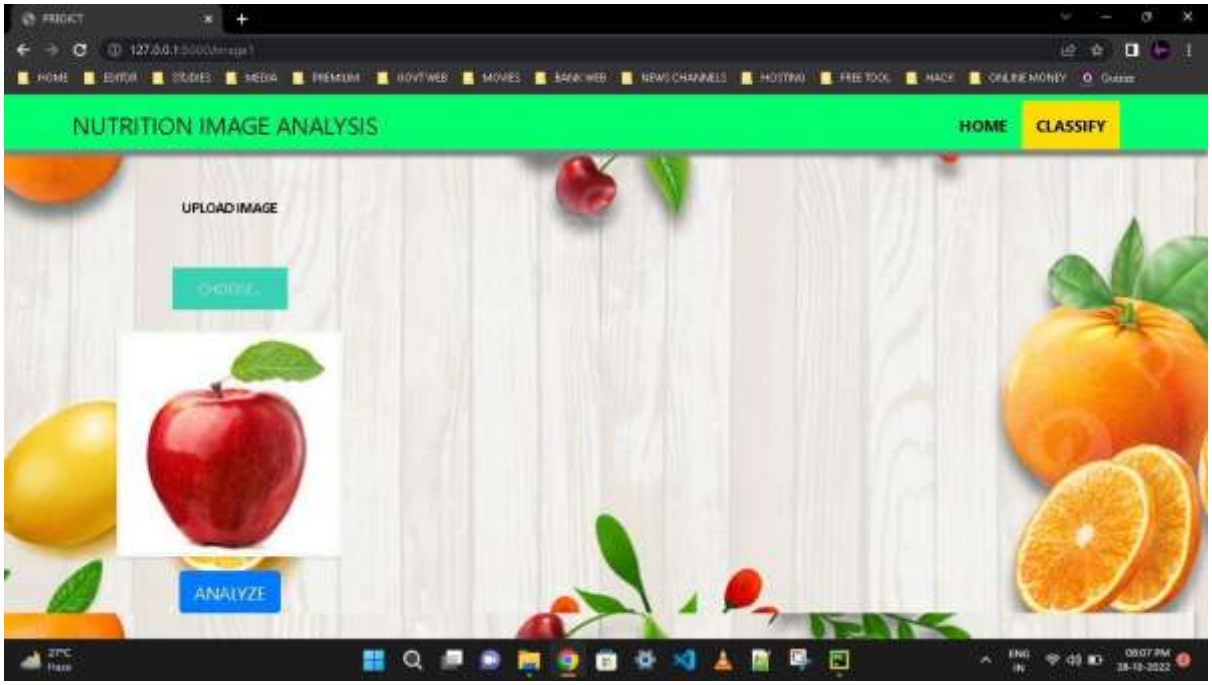
ENG IN

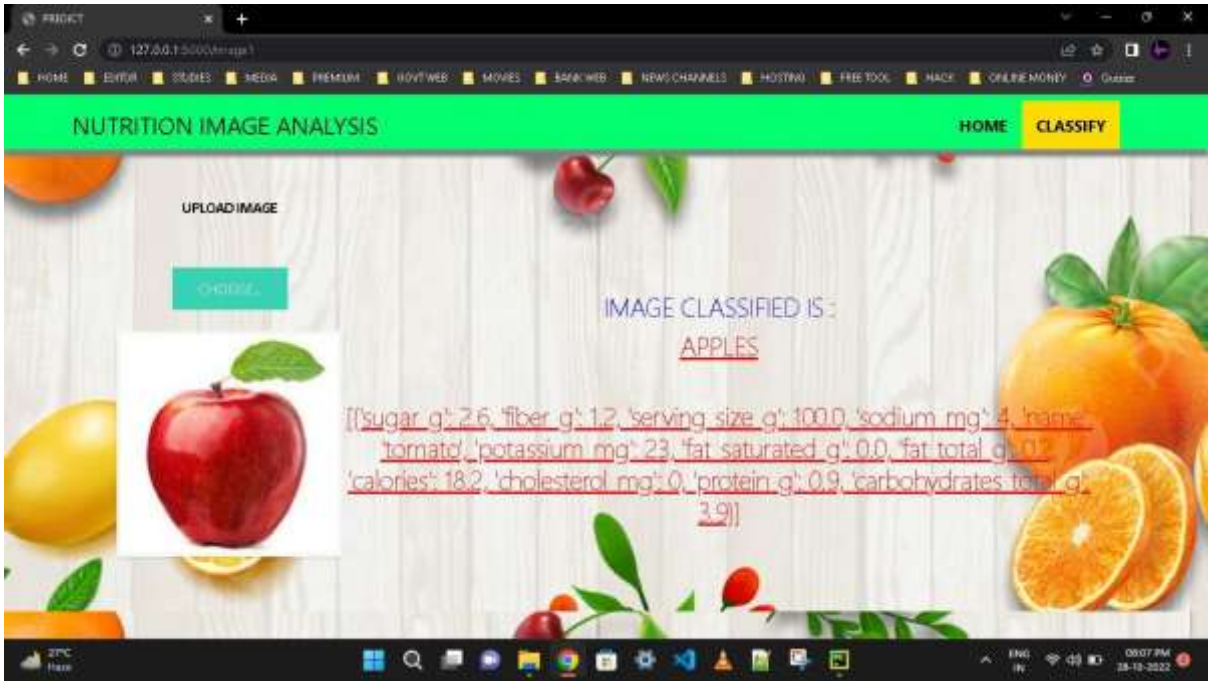
10:23 PM 11-11-2022


NUTRITION IMAGE ANALYSIS
HOME
CLASSIFY
AIM OF THE PROJECT
The main aim of the project is to building a model which is used for classifying the fruit depends on the different characteristics like colour, shape, texture etc.
Here the user can capture the images of different fruits and then the image will be sent the trained model.
The model analyses the image and detect the nutrition based on the fruits like (Sugar, Fibre, Protein, Calories, etc.).


NUTRITION IMAGE ANALYSIS
HOME
CLASSIFY
UPLOAD IMAGE
CHOOSE
ANALYZE


NUTRITION IMAGE ANALYSIS
HOME
CLASSIFY
UPLOAD IMAGE
CHOOSE
ANALYZE
Open
Organize
New folder
apple
banana
download
Open
Cancel


NUTRITION IMAGE ANALYSIS
HOME
CLASSIFY
UPLOAD IMAGE
CHOOSE
ANALYZE


NUTRITION IMAGE ANALYSIS
HOME
CLASSIFY
UPLOAD IMAGE
IMAGE CLASSIFIED IS :
APPLES
[{'sugar_g': 2.6, 'fiber_g': 1.2, 'serving_size_g': 100.0, 'sodium_mg': 4, 'name': 'tomato', 'potassium_mg': 23, 'fat_saturated_g': 0.0, 'fat_total_g': 0.2, 'calories': 18.2, 'cholesterol_mg': 0, 'protein_g': 0.9, 'carbohydrates_total_g': 3.9}]