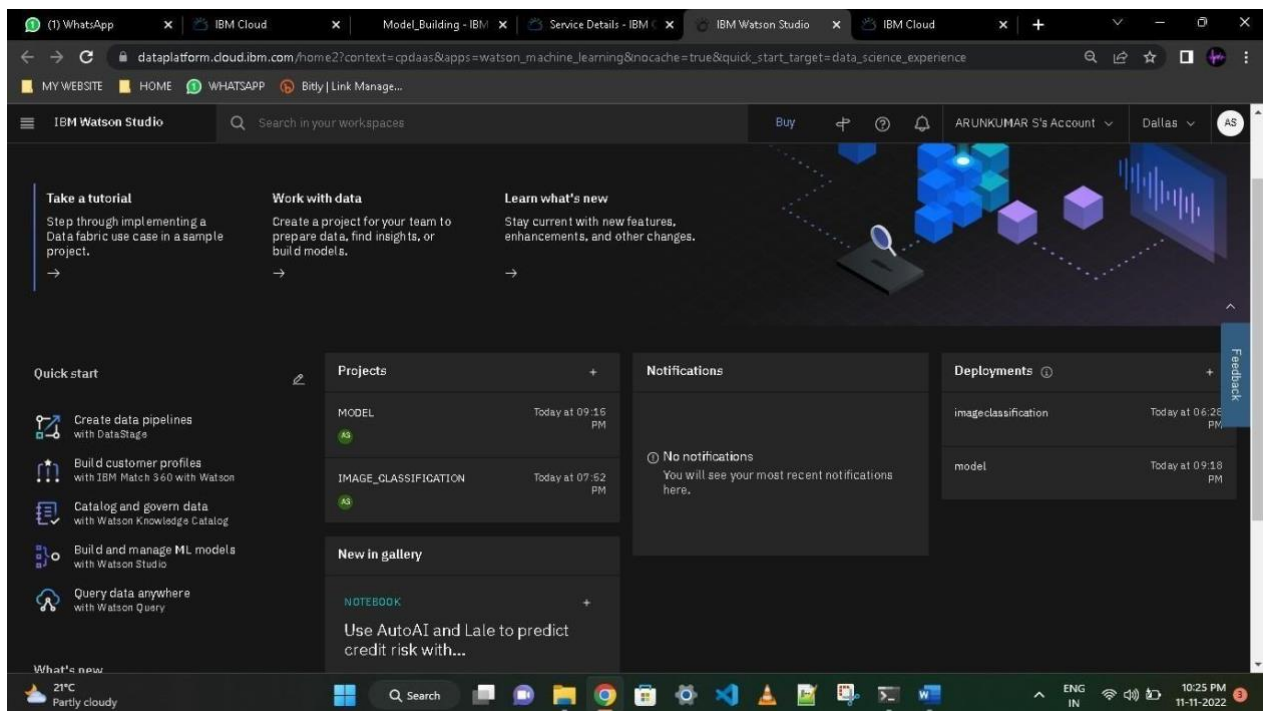


# Train Model On IBM

Date	15 November 2022
Team ID	PNT2022TMID41556
Project Name	AI-Powered Nutrition Analyzer for Fitness Enthusiasts



WhatsAppIBM CloudModel\_Building - IBM WatsonService Details - IBM CloudIBM Cloud

cloud.ibm.com/services/pm-20/crn%3Av1%3Abluemix%3Apublic%3Apm-20%3Aus-south%3Aa%2Fe877a29349614c2a84759a1df2cc02be%3Aef063387-dfba-4d59-a04...


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Resource list /

Watson Machine Learning-juActivecp daasDetailsActions...


ManagePlanConnections



### Watson Machine Learning in Cloud Pak for Data

Use Watson Machine Learning on Cloud Pak for Data to put AI models to work. Deploy, monitor, and update models to get the insights you need from your data modeling.

Launch in IBM Cloud Pak for Data



IBM Watson Machine Learning in Cloud Pak for Data

IBM Cloud Pak for Data Unifying platform

IBM Cloud Base cloud infrastructure

IBM Watson Machine Learning is part of IBM Cloud Pak for Data and serves as the data science capability of the data fabric architecture.

Helpful links

DocumentationLearning pathVideos

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Notebooks1

Notebooks

Name	Language	Last modified
Model_Building Notebook	Python 3.9	42 minutes ago Modified by you

Items per page: 201-1 of 1 items1 of 1 pages

About this project

Name

IMAGE\_CLASSIFICATION

Description

What's the purpose of this project?

Collaborators

ARUNKUMAR S (you)  
Admin

Controls

Cloud object storage

89.2 MB used

IBM Cloud account

Name: ARUNKUMAR S's Account

ID: e877a29349614c2a84759a1df2cc02

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Partly cloudy

Search

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11-11-2022

WhatsApp Cloud Pak for Data - IBM Cloud Model\_Building - IBM Watson Studio Service Details - IBM Cloud

dataplatform.cloud.ibm.com/analytics/notebooks/v2/f5e98c53-c155-4053-86ee-6aae5f67e1bd?projectId=26b5ae93-a59f-484c-802c-0c67d01c80db&context=cpd...

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Projects / IMAGE\_CLASSIFICATION / Model\_Building

File Edit View Insert Cell Kernel Help Not Trusted | Python 3.9

Date: 01 November 2022  
Team ID: PNT2022TMD18332  
Project Name: AI-powered Nutrition Analyzer for Fitness Enthusiasts

### Data Collection

Download the dataset [here](#)

```
In [55]: pwd
Out[55]: '/home/wuser/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-py3-none-any.whl (1.3 MB)
Installing collected packages: keras
  Attempting uninstall: keras
```

21°C Cloudy 10:21 PM 11-11-2022

(1) WhatsApp Cloud Pak for Data - IBM Cloud Model\_Building - IBM Watson Studio Service Details - IBM Cloud

dataplatform.cloud.ibm.com/analytics/notebooks/v2/f5e98c53-c155-4053-86ee-6aae5f67e1bd?projectId=26b5ae93-a59f-484c-802c-0c67d01c80db&context=cpd...

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Projects / IMAGE\_CLASSIFICATION / Model\_Building

File Edit View Insert Cell Kernel Help Not Trusted | Python 3.9

```
!>tensorboard==2.6>tensorflow==2.7.0 (3.2.1)

In [ ]:

In [73]: from keras.models import Sequential
          from keras.layers import Dense
          from keras.layers import Convolution2D
          from keras.layers import MaxPooling2D
          from keras.layers import Flatten



### Image Preprocessing



In [58]: from keras.preprocessing.image import ImageDataGenerator



### Image Data Augmentation



In [59]: 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


```

21°C Cloudy 10:21 PM 11-11-2022

IBM Watson Studio interface showing a notebook titled "Applying Image DataGenerator Functionality To Trainset And Testset". The notebook is running Python 3.9. The code in the notebook includes imports for os, types, pandas, boto3, and Config, and defines a class with an \_\_iter\_\_ method. The code also includes comments about accessing IBM Cloud Object Storage and downloading a dataset file.

```
test_datagen=ImageDataGenerator(rescale=1./255)

In [60]:
import os, types
import pandas as pd
from boto3.client import Config
import 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 = boto3.client(service_name='s3',
                          aws_access_key_id='IAU27L57syPXTIQiss)A25E16mCHJ532640U0YD2HI',
                          aws_secret_access_key='...',
                          endpoint_url='https://iam.cloud.ibm.com/oidc/token',
                          config=Config(signature_version='oauth'),
                          endpoint_url='https://s3.private.us.cloud-object-storage.appdomain.cloud')

bucket = 'imageclassification-donotdelete-pr-v1604oqxvxyin'
object_key = 'Dataset.zip'

streaming_body_0 = cos_client.get_object(Bucket=bucket, Key=object_key)['Body']

# Your data file was loaded into a boto3.response.StreamingBody object.
```

The right sidebar shows the "Data" panel with a "Files" tab. It indicates that one file can be uploaded at a time, with a 5 GB max file size. A "Dataset.zip" file is listed with an "Insert to code" button.

21°C Cloudy

10:21 PM 11-11-2022

IBM Watson Studio interface showing a Jupyter Notebook environment. The browser address bar shows the URL: `dataplatfom.cloud.ibm.com/analytics/notebooks/v2/f5e98c53-c155-4053-86ee-6aae5f67e1bd/projectid=26b5ae93-a59f-484c-802c-0c67d01c80db&context=cpd...`

The notebook interface includes a menu bar (File, Edit, View, Insert, Cell, Kernel, Help) and a toolbar with icons for file operations, cell execution, and formatting. The main area displays the following code cells:

```
In [61]: from io import BytesIO
import zipfile
unzip=zipfile.ZipFile(BytesIO(streaming_body_8.read()),'r')
file_paths=unzip.namelist()
for path in file_paths:
    unzip.extract(path)

In [62]: pwd
Out[62]: '/home/wuser/work'

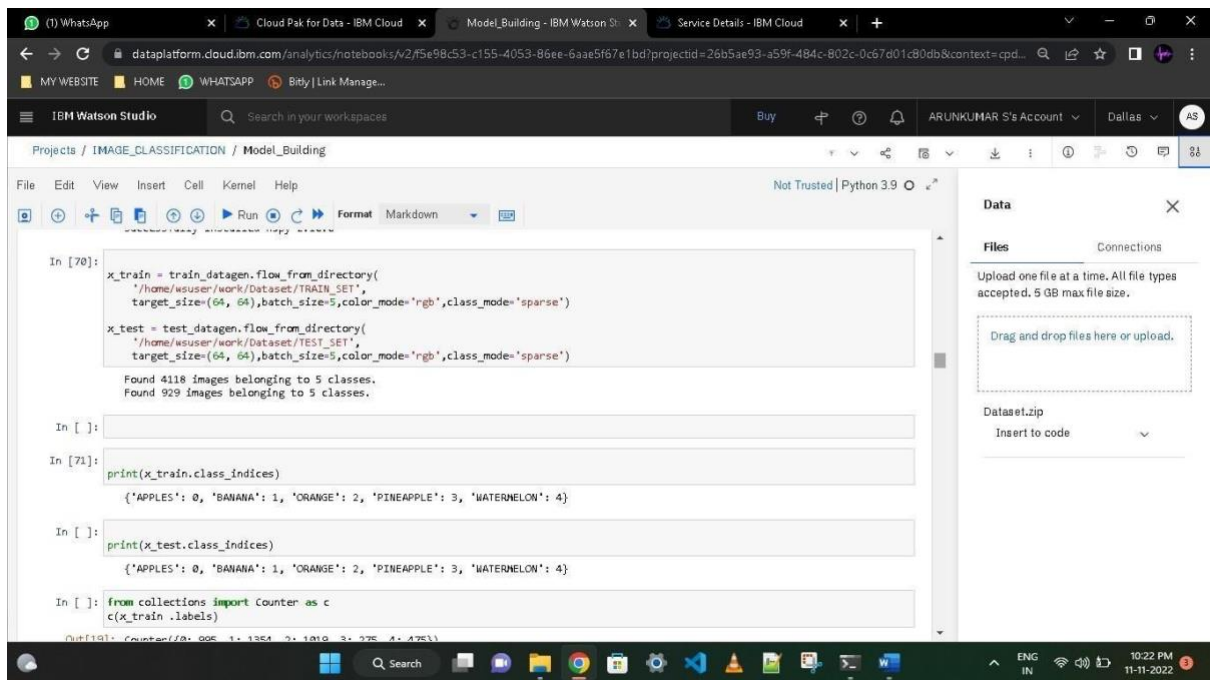
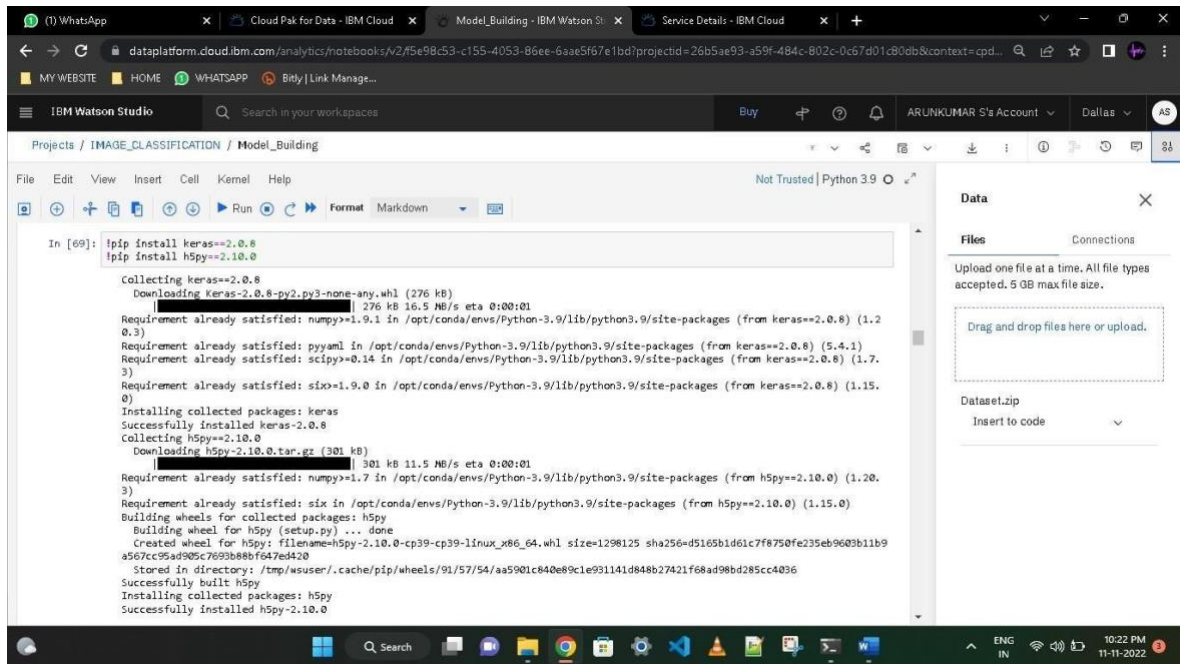
In [64]: import os
filenames=os.listdir('/home/wuser/work/Dataset/TRAIN_SET')

In [68]: !pip uninstall keras -y
!pip uninstall keras-nightly -y
!pip uninstall keras-Preprocessing -y
!pip uninstall keras-vis -y
!pip uninstall tensorflow -y
!pip uninstall h5py -y

Found existing installation: keras 2.7.0
Uninstalling keras-2.7.0:
  Successfully uninstalled keras-2.7.0
WARNING: Skipping keras-nightly as it is not installed.
Found existing installation: Keras-Preprocessing 1.1.2
Uninstalling Keras-Preprocessing-1.1.2:
  Successfully uninstalled Keras-Preprocessing-1.1.2
WARNING: Skipping tensorflow as it is not installed.
```

The right sidebar contains a 'Data' panel with 'Files' and 'Connections' tabs. The 'Files' tab shows a message: 'Upload one file at a time. All file types accepted. 5 GB max file size.' and a dashed box for file upload. Below it, 'Dataset.zip' is listed with an 'Insert to code' button.

The bottom status bar shows the system clock as 10:21 PM on 11-11-2022, along with language (ENG IN) and connectivity icons.





IBM Watson Studio interface showing a Jupyter Notebook titled "Model Building".

The notebook content includes:

```
In [75]: 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
```

-----

```
ModuleNotFoundError: Traceback (most recent call last)
/tmp/ksuser/lpykernel_165/3963299783.py in <module>
      1 import numpy as np
      2 import tensorflow as tf
----> 3 from tensorflow.keras.models import Sequential
      4 from tensorflow.keras import layers
      5 from tensorflow.keras.layers import Dense, Flatten

ModuleNotFoundError: No module named 'tensorflow.keras'
```

In [76]:

The right sidebar shows the "Data" panel with options to upload files or connect to a dataset.

The bottom status bar indicates the environment is "Python 3.9" and the date is "11-11-2022".



IBM Watson Studio interface showing a Jupyter Notebook titled "Model\_Building" in the "IMAGE\_CLASSIFICATION" project.

The notebook contains the following code:

```
2. Initializing The Model

In [78]: model = Sequential()

2022-11-11 11:55:55.729213: W tensorflow/stream_executor/platform/default/dso_loader.cc:64] Could not load dynamic library 'libcuda.so.1'; dlopen: libcuda.so.1: cannot open shared object file: No such file or directory; LD_LIBRARY_PATH: /opt/ibm/dsdriver/r/lib:/opt/oracle/lib:/opt/conda/envs/Python-3.9/lib/python3.9/site-packages/tensorflow
2022-11-11 11:55:55.729279: W tensorflow/stream_executor/cuda/cuda_driver.cc:263] failed call to cuInit: UNKNOWN ERROR (303)

3. Adding CNN Layers

In [79]: 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())
```

The right sidebar shows the "Data" panel with a "Files" section and a "Dataset.zip" dropdown menu.

The bottom status bar indicates the system is running on a Windows machine with the date and time 10:22 PM 11-11-2022.

IBM Watson Studio interface showing a Jupyter Notebook titled "Model\_Building". The notebook is in the "Model\_Building" project under the "IMAGE\_CLASSIFICATION" workspace. The code in the notebook is as follows:

```
In [80]: classifier.add(Dense(units=128, activation='relu'))
classifier.add(Dense(units=5, activation='softmax'))

In [ ]:

In [81]: classifier.summary()
```

The output of the `summary()` method is displayed below the code:

Layer (type)	Output Shape	Param #
conv2d (Conv2D)	(None, 62, 62, 32)	896
max_pooling2d (MaxPooling2D)	(None, 31, 31, 32)	0
conv2d_1 (Conv2D)	(None, 29, 29, 32)	9248
max_pooling2d_1 (MaxPooling2D)	(None, 14, 14, 32)	0
flatten (Flatten)	(None, 6272)	0
dense (Dense)	(None, 128)	802944

The right sidebar shows the "Data" panel with a "Files" tab. It contains a message: "Upload one file at a time. All file types accepted. 5 GB max file size." and a "Dataset.zip" file listed below it.

IBM Watson Studio interface showing the same Jupyter Notebook titled "Model\_Building". The notebook is in the "Model\_Building" project under the "IMAGE\_CLASSIFICATION" workspace. The code in the notebook is as follows:

```
In [82]: classifier.compile(optimizer='adam', loss='sparse_categorical_crossentropy', metrics=['accuracy'])

In [83]: classifier.fit_generator(generator=x_train, steps_per_epoch = len(x_train), epochs=20, validation_data=x_test, validation_steps = len(x_test))
```

The output of the `fit_generator` method is displayed below the code:

```
Epoch 1/20
WARNING:tensorflow:AutoGraph could not transform <function Model.make_train_function.<locals>.train_function at 0x7f06d4f7cdc0> and will run it as-is.
Please report this to the TensorFlow team. When filing the bug, set the verbosity to 10 (on Linux, 'export AUTOGRAPH_VERBOSITY=10') and attach the full output.
Cause: closure mismatch, requested ('self', 'step_function'), but source function had ()
To silence this warning, decorate the function with @tf.autograph.experimental.do_not_convert
WARNING: AutoGraph could not transform <function Model.make_train_function.<locals>.train_function at 0x7f06d4f7cdc0> and will run it as-is.
```

The right sidebar shows the "Data" panel with a "Files" tab. It contains a message: "Upload one file at a time. All file types accepted. 5 GB max file size." and a "Dataset.zip" file listed below it.

IBM Watson Studio interface showing a Jupyter Notebook with training progress output.

**Projects / IMAGE\_CLASSIFICATION / Model\_Building**

File Edit View Insert Cell Kernel Help

Not Trusted | Python 3.9

```
0.8084 [=====] - 45s 54ms/step - loss: 0.2508 - accuracy: 0.9034 - val_loss: 0.4238 - val_accuracy: 0.8084
Epoch 2/20
824/824 [=====] - 51s 62ms/step - loss: 0.4291 - accuracy: 0.8407 - val_loss: 0.4409 - val_accuracy: 0.8202
Epoch 3/20
824/824 [=====] - 48s 59ms/step - loss: 0.3797 - accuracy: 0.8565 - val_loss: 0.5238 - val_accuracy: 0.8073
Epoch 4/20
824/824 [=====] - 49s 59ms/step - loss: 0.3626 - accuracy: 0.8621 - val_loss: 0.4525 - val_accuracy: 0.8052
Epoch 5/20
824/824 [=====] - 48s 58ms/step - loss: 0.3440 - accuracy: 0.8691 - val_loss: 0.4087 - val_accuracy: 0.8450
Epoch 6/20
824/824 [=====] - 48s 58ms/step - loss: 0.3269 - accuracy: 0.8820 - val_loss: 0.4273 - val_accuracy: 0.8418
Epoch 7/20
824/824 [=====] - 47s 57ms/step - loss: 0.3166 - accuracy: 0.8871 - val_loss: 0.5578 - val_accuracy: 0.7578
Epoch 8/20
824/824 [=====] - 46s 56ms/step - loss: 0.2916 - accuracy: 0.8898 - val_loss: 0.4375 - val_accuracy: 0.8579
Epoch 9/20
824/824 [=====] - 48s 58ms/step - loss: 0.2822 - accuracy: 0.8963 - val_loss: 0.4105 - val_accuracy: 0.8525
Epoch 10/20
824/824 [=====] - 46s 56ms/step - loss: 0.2595 - accuracy: 0.8995 - val_loss: 0.4174 - val_accuracy: 0.8547
Epoch 11/20
824/824 [=====] - 45s 54ms/step - loss: 0.2508 - accuracy: 0.9034 - val_loss: 0.4238 - val_accuracy: 0.8084
```

**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

Windows taskbar: Search, ENG IN, 10:22 PM 11-11-2022

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All assets

Asset types

Data1

Data assets1

Notebooks1

Data assets

Name	Last modified
<div>Dataset1.zip</div> <div>application/x-zip-compressed</div>	<div>6 hours ago</div> <div>Modified by you</div>

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About this project

Name

IMAGE\_CLASSIFICATION

Description

What's the purpose of this project?

Collaborators

ARUNKUMAR S (you)Admin

Controls

Cloud object storage

89.2 MB used

IBM Cloud account

Name: ARUNKUMAR S's Account1

ID: e877a29349614c2a84759a1df2cc02

21°C

Partly cloudy

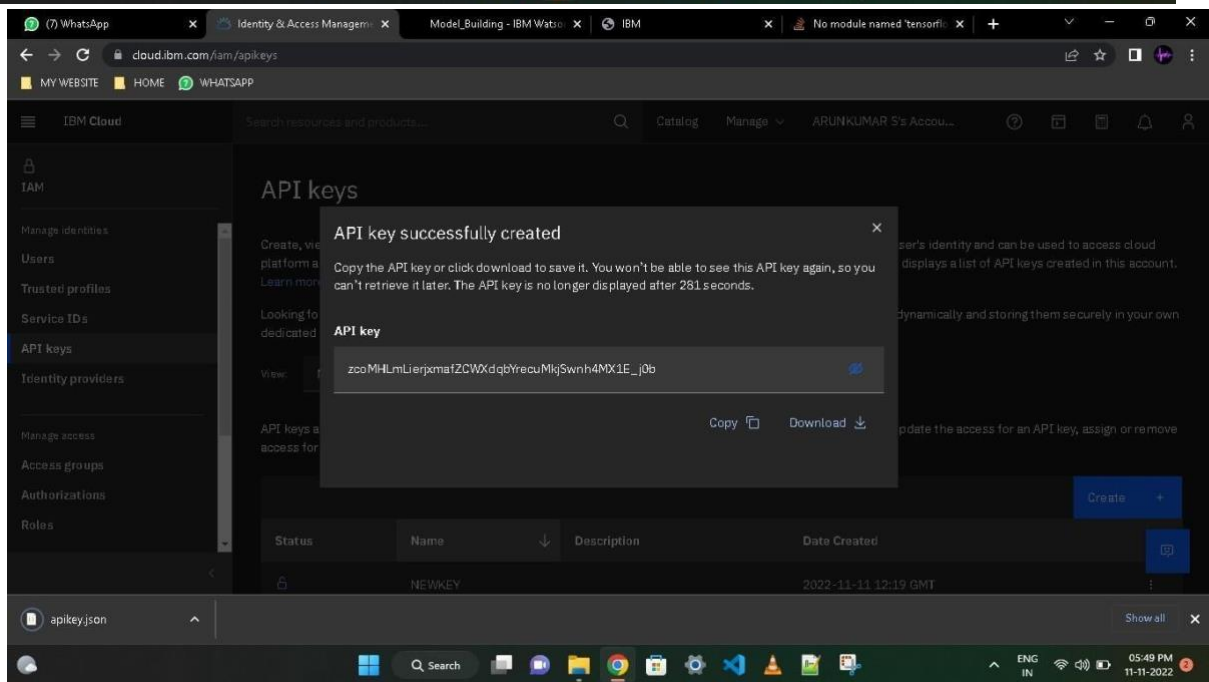
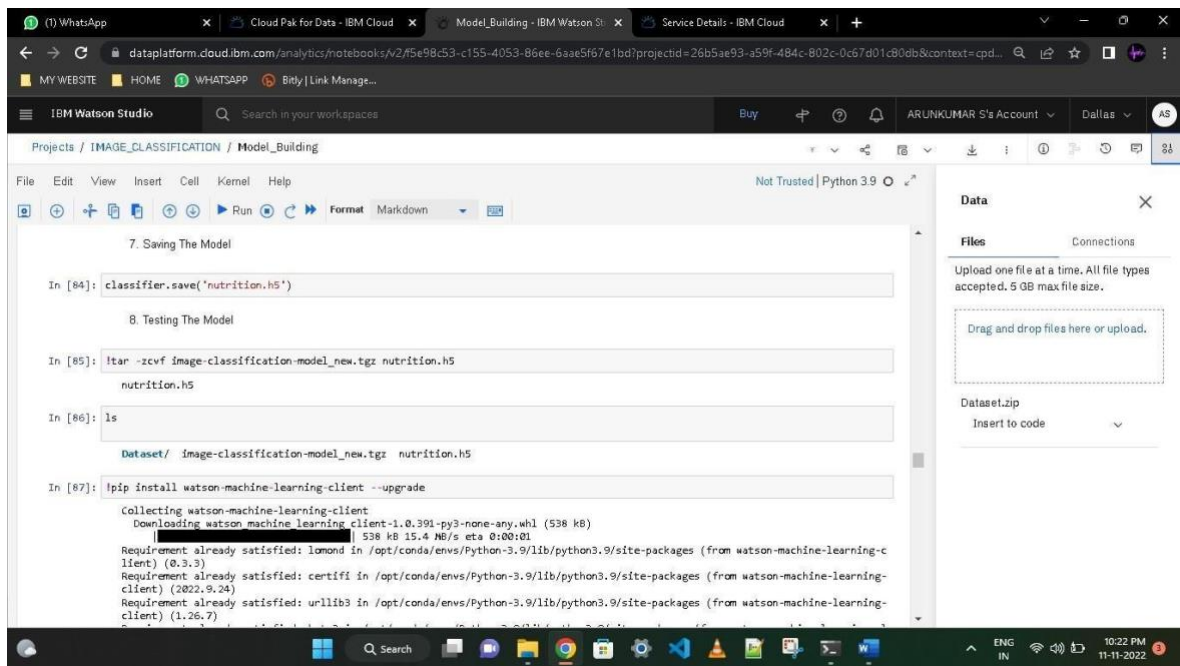
Search

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10:25 PM

11-11-2022



IBM Watson Studio interface showing a Jupyter Notebook environment. The browser tabs include WhatsApp, Cloud Pak for Data - IBM Cloud, Model\_Building - IBM Watson Studio, and Service Details - IBM Cloud. The URL is `dataplatfom.cloud.ibm.com/analytcs/notebooks/42f5e98c53-c155-4053-86ee-6aae5f67e1bd?projectid=26b5ae93-a59f-484c-802c-0c67d01c80db&context=cpd...`.

The IBM Watson Studio header shows the user is ARUNKUMAR S's Account, located in Dallas. The project is IMAGE\_CLASSIFICATION / Model\_Building.

The Jupyter Notebook code (Python 3.9) is as follows:

```
In [195]: from ibm_watson_machine_learning import APIClient

wml_credentials={
    "url": "https://us-south.ml.cloud.ibm.com",
    "apikey": "Ye1oAQ2nuJFdmjRCFur8Q6W4VnKtsAhv3QHRQ2bwINyaxj"
}
client=APIClient(wml_credentials)

In [184]: client=APIClient(wml_credentials)

In [185]: def guid_from_space_name(client,space_name):
           space=client.spaces.get_details()
           return (next(item for item in space['resources'] if item['entity']['name']==space_name)['metadata']['id'])

In [217]: space_uid=guid_from_space_name(client,'model')
           print("Space UID = " + space_uid)

           Space UID = f0e78f3c-2a8d-464f-a1bd-bb372d0f1bb9

In [218]: client.set.default_space(space_uid)

Out[218]: 'SUCCESS'

In [219]: client.software_specifications.list()
```

The right sidebar shows the Data panel with a Files section. It prompts to "Upload one file at a time. All file types accepted. 5 GB max file size." and includes a "Dataset.zip" section with an "Insert to code" button.

The Windows taskbar at the bottom shows the time as 10:22 PM on 11-11-2022.

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Deployments /

imageclassification

OverviewAssetsDeploymentsJobsManage

General

Access control

Environments

Space Details

Name

imageclassification

Description

No description provided.

Space GUID

d5d873f7-6969-490d-91a2-0dd697b5...

Date created

Nov 11, 2022, 6:21 PM

by ARUNKUMAR S (You)

Last updated

Nov 11, 2022, 6:28 PM

Deployment space tags

No tags are set to this space.

Cloud Object Storage

Manage

Storage used

0 Bytes used

Name

Cloud Object Storage-cf

Bucket

04a25128-b6dc-461f-8071-5d162f64c86d

Machine learning service

Watson Machine Learning-ju

Drop files here or browse for files to upload.

Stay on the page until upload completes. Incomplete uploads are cancelled.

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10:27 PM  
11-11-2022



IBM Watson Studio interface showing a project named 'IMAGE\_CLASSIFICATION' under 'Model\_Building'. The main workspace displays a table of software specifications with columns NAME, ASSET\_ID, and TYPE. The table lists various software packages like default\_py3.6, kernel-spark3.2-scala2.12, and tensorflow\_2.4-py3.7-harowad, along with their corresponding ASSET\_IDs and types (base or spark).

NAME	ASSET_ID	TYPE
default_py3.6	0062b8c9-8b7d-44a0-a9b9-46c416adcbd9	base
kernel-spark3.2-scala2.12	020469ce-7ac1-5e68-ac1a-311896b7356a	base
pytorch-onnx_1.3-py3.7-edt	009ea134-3346-5748-b513-49120e15d288	base
scikit-learn_0.20-py3.6	09c5a1d0-9c1e-4473-a344-eb7b665ff687	base
spark-mllib_3.0-scala_2.12	09f4c7f0-90a7-5899-b9ed-1ef348aebdee	base
pytorch-onnx_rt22.1-py3.9	0b848d64-e081-5599-be41-b5f6fccc0471	base
ai-function_0.1-py3.6	0cb07f1e-5376-4f4d-92dd-da3b69a9bda	base
shiny-r3.6	0e6e79df-875e-4f24-8ae9-62d6c2148306	base
tensorflow_2.4-py3.7-harowad	1092590a-307d-563d-9b62-4eb7d64b3f22	base
pytorch_1.1-py3.6	10ac12d6-6b30-4ccd-8392-3e922c096a92	base
tensorflow_1.15-py3.6-ddl	111e41b3-de2d-5422-a4d6-bf776826c4b7	base
autos1-rt22.2-py3.10	125b6d9a-5b1f-5e8d-972a-b251688ccf40	base
runtime_22.1-py3.9	12b83a17-24d8-5082-900f-0ab31bf6d3cb	base
scikit-learn_0.22-py3.6	154010fa-5b3b-4ac1-82af-4d5ee5abbc85	base
default_r3.6	1b70aec3-ab34-4b87-8aa0-a4a3c829ea36	base
pytorch-onnx_1.3-py3.6	1bc6029a-cc97-56da-b8e0-39c3880dbbe7	base
kernel-spark3.3-r3.6	1c9e5454-f216-59dd-a20e-474a5cd0f598	base
pytorch-onnx_rt22.1-py3.9-edt	1d362186-7ad5-5859-8b6c-9d08a80de37f	base
tensorflow_2.1-py3.6	1eb25b84-d6ed-5dde-b6a5-3fbd1f665666	base
spark-mllib_3.2	20047f72-0a98-58c7-9ff5-a77b012ebf5	base
tensorflow_2.4-py3.8-harowad	217c16f6-178f-56bf-824a-b19f20504c49	base
runtime_22.1-py3.9-cuda	26215f05-08c3-5441-a1b0-da66306ce58	base
do_py3.8	295addb5-9ef9-547e-9b4f-92ae3563e720	base
autoai-ts_3.8-py3.8	2aa0c932-798f-5ae9-abd6-15e0c24027f5	base
tensorflow_1.15-py3.6	2b73a275-7cbf-420b-a912-eae7f436e0bc	base
kernel-spark3.3-py3.9	2b7961e2-e3b1-5a8c-a491-482c8368839a	base
pytorch_1.1-py3.6	2c6c6734-3007-4b76-a999-0b600707d63c	base

IBM Watson Studio interface showing a Jupyter Notebook session. The notebook displays the output of a command to get the software specification ID for 'default\_py3.6'. The output is '0062b8c9-8b7d-44a0-a9b9-46c416adcbd9'. Below this, the notebook shows the output of a command to install 'ibm\_watson\_machine\_learning'. The output indicates that the requirement is already satisfied for 'ibm\_watson\_machine\_learning' (1.0.257) and lists other installed packages like 'importlib-metadata', 'tabulate', 'lmonad', 'packaging', 'ibm-cos-sdk', 'urllib3', and 'requests'.

```
Note: Only first 50 records were displayed. To display more use 'limit' parameter.
```

```
In [220]: software_spec_uid = client.software_specifications.get_uid_by_name("default_py3.6")
software_spec_uid

Out[220]: '0062b8c9-8b7d-44a0-a9b9-46c416adcbd9'
```

```
In [ ]:

In [ ]:

In [222]: pip install ibm_watson_machine_learning

Requirement already satisfied: ibm_watson_machine_learning in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (1.0.257)
Requirement already satisfied: importlib-metadata in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (4.8.2)
Requirement already satisfied: tabulate in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (0.8.9)
Requirement already satisfied: lmonad in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (0.3.3)
Requirement already satisfied: packaging in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (21.3)
Requirement already satisfied: ibm-cos-sdk==2.11.* in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (2.11.0)
Requirement already satisfied: urllib3 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (1.26.7)
Requirement already satisfied: requests in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (2.26.0)
```

IBM Watson Studio interface showing a Jupyter Notebook environment. The browser tabs include WhatsApp, Cloud Pak for Data - IBM Cloud, Model\_Building - IBM Watson Studio, and Service Details - IBM Cloud. The URL is [dataplatform.cloud.ibm.com/analytics/notebooks/V2/f5e98c53-c155-4053-86ee-6aae5f67e1bd?projectId=26b5ae93-a59f-484c-802c-0c67d01c80db&context=cpd...](https://dataplatform.cloud.ibm.com/analytics/notebooks/V2/f5e98c53-c155-4053-86ee-6aae5f67e1bd?projectId=26b5ae93-a59f-484c-802c-0c67d01c80db&context=cpd...)

The IBM Watson Studio header shows the user is ARUNKUMAR S's Account, located in Dallas. The breadcrumb navigation is Projects / IMAGE\_CLASSIFICATION / Model\_Building.

The Jupyter Notebook code cells contain the following Python code:

```
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)
```

The right sidebar shows the Data panel with a Files section. It prompts the user to "Upload one file at a time. All file types accepted. 5 GB max file size." and includes a "Dataset.zip" section with an "Insert to code" button.

The Windows taskbar at the bottom shows the system clock as 10:23 PM on 11-11-2022, with a temperature of 21°C and Humid weather.

IBM Watson Studio interface showing a Jupyter Notebook for Image Classification.

**Browser Tabs:** WhatsApp, Cloud Pak for Data - IBM Cloud, Model\_Building - IBM Watson Studio, Service Details - IBM Cloud.

**URL:** dataplatform.cloud.ibm.com/analytics/notebooks/v2/75e98c53-c155-4053-86ee-6aae5f67e1bd/projectid=26b5ae93-a59f-484c-802c-0c67d01c80db&context=cpd...

**IBM Watson Studio Header:** Search in your workspaces, Buy, ARUNKUMAR S's Account, Dallas, AS.

**Projects:** IMAGE\_CLASSIFICATION / Model\_Building

**File Edit View Insert Cell Kernel Help** Not Trusted | Python 3.9

**Code Snippets:**

```
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 Panel:**

- Files:** 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

**System Tray:** 21°C Humid, Search, ENG IN, 10:23 PM 11-11-2022

Cloud Pak for Data services

Launch Cloud Pak for Data

Name	Group	Location	Product	Status	Tags
Cloud Object Storage-of	Default	Global	Cloud Object Storage	Active	
Watson Studio-ot	Default	Dallas	Watson Studio	Active	
Watson Machine Learning-ju	Default	Dallas	Watson Machine Learning	Active	

Items per page: 25 1-3 of 3 items 1 1 of 1 page

Buckets

Buckets serve as containers for objects, and can be individually configured in terms of their location, resiliency, billing rates, security, and object lifecycle rules.

Create bucket

Name	Public access	Location	Storage class	Created
04a25128-b6dc-461f-8071-5d162f64c86d	No	us-south	Standard	2022-11-11 6:21 PM
b093cbba-2293-4e6b-b5c1-a47c74f2e51c	No	us-south	Standard	2022-11-11 9:18 PM
imageclassification-donotdelete-pr-v1604oqevxtyin	No	us-geo	Standard	2022-11-11 3:44 PM
model-donotdelete-pr-wkmi3rbetzs49	No	us-geo	Standard	2022-11-11 9:12 PM

## OBJECTIVE OF THE PROJECT

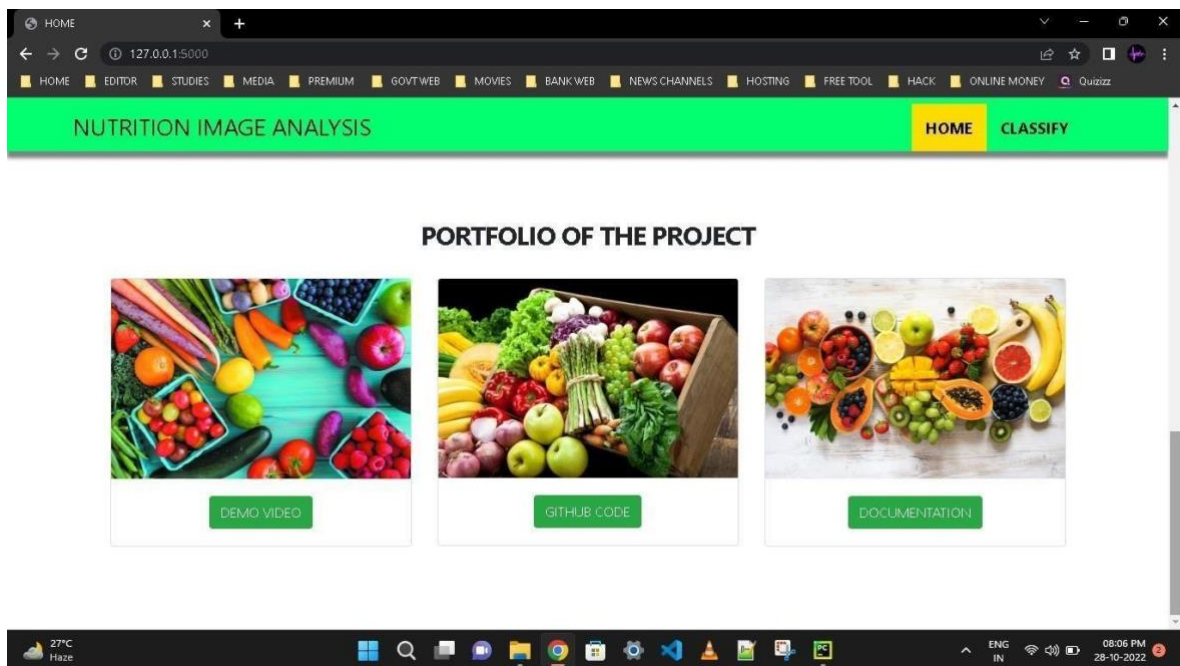


- Food is essential for human life and has been the concern of many healthcare conventions.
- Nowadays new dietary assessment and nutrition analysis tools enable more opportunities to help people understand their daily eating habits, exploring nutrition patterns and maintain a healthy diet.
- Nutritional 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.

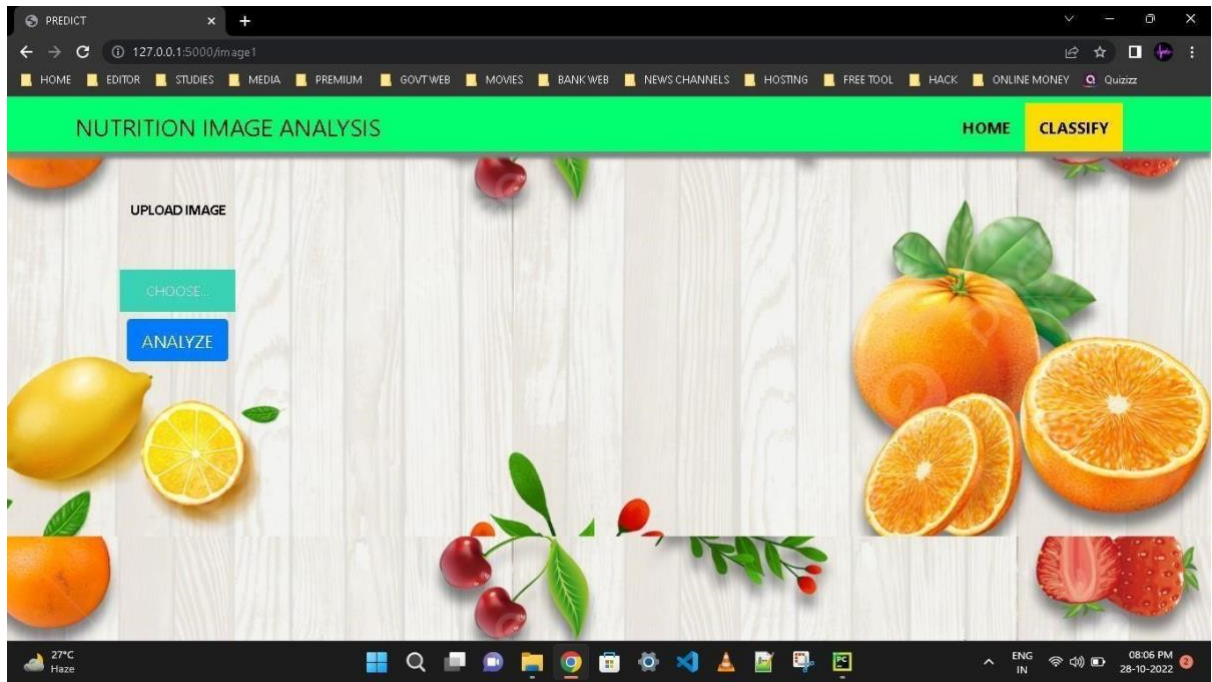
## AIM OF THE PROJECT



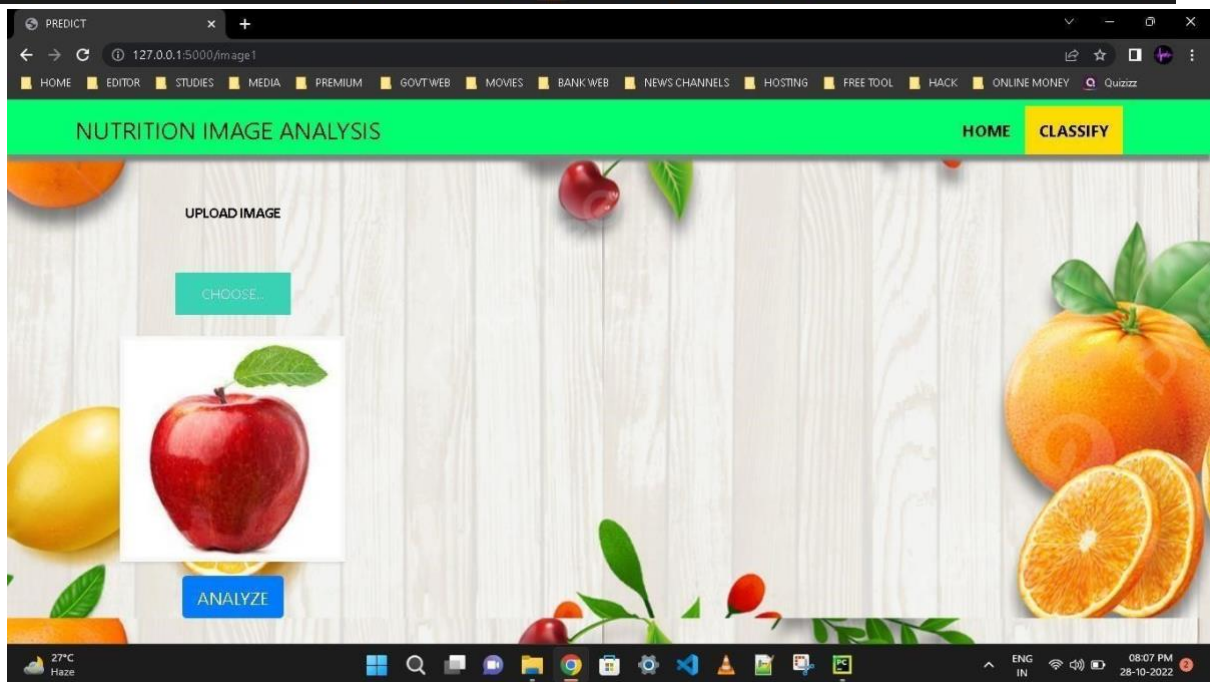
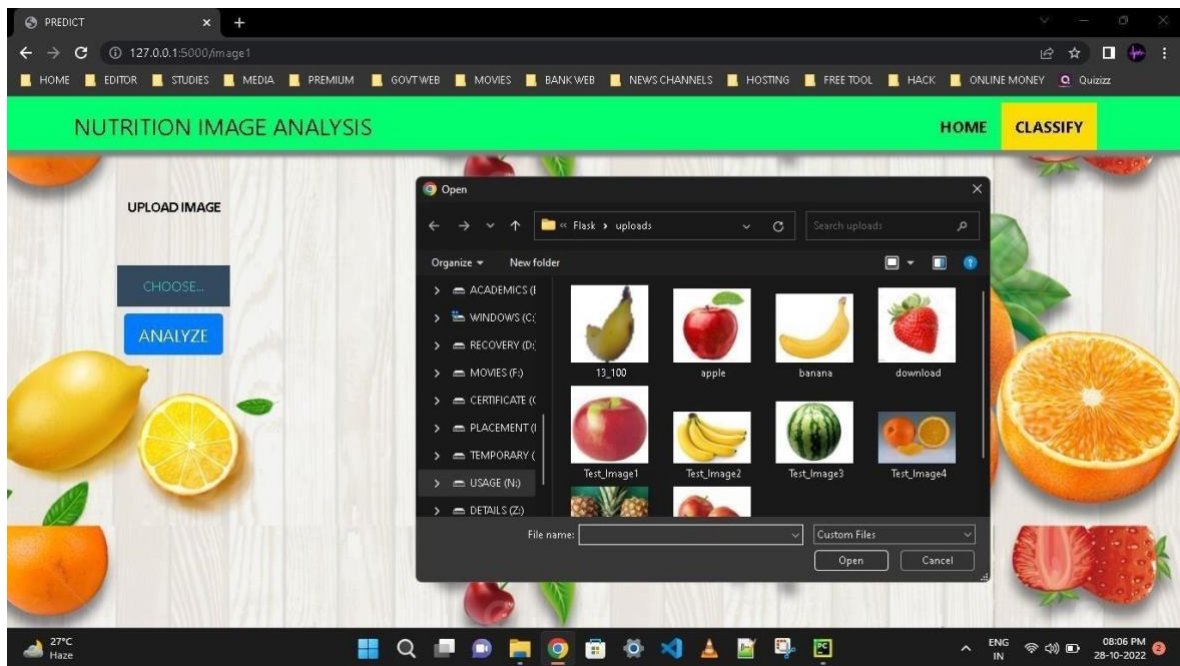
- The main aim of the project is to building a model which is used for classifying the fruit depends on the different characteristics like colour, shape, texture etc.
- Here the user can capture the images of different fruits and then the image will be sent the trained model.
- The model analyses the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











PREDICT x +

127.0.0.1:5000/image1

HOME EDITOR STUDIES MEDIA PREMIUM GOVT WEB MOVIES BANK WEB NEWS CHANNELS HOSTING FREE TOOL HACK ONLINE MONEY Quizizz

## NUTRITION IMAGE ANALYSIS

HOME CLASSIFY

UPLOAD IMAGE

CHOOSE...




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}]

27°C Haze

ENG IN 08:07 PM 28-10-2022