**Team ID:PNT2022TMlD31216**

**Importing The ImageDataGenerator Library**

In [89]:

**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**=**'QVsKoX6yNRLn8Qv\_RWlO4N-PlH8ddMdZyPPjLiIW1oz6',

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 **=** 'imageclassification-donotdelete-pr-ncc5wgfie3fmsd'

object\_key **=** 'Dataset.zip'

streaming\_body\_2 **=** 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/*

In [90]:

**from** io **import** BytesIO

**import** zipfile

unzip**=**zipfile**.**ZipFile(BytesIO(streaming\_body\_2**.**read()),'r')

file\_paths**=**unzip**.**namelist()

**for** path **in** file\_paths:

unzip**.**extract(path)

In [91]:

pwd

Out[91]:

'/home/wsuser/work'

In [92]:

**import** os

filenames**=**os**.**listdir('/home/wsuser/work/Dataset/train\_set')

In [93]:

**!**pip install libgl1-mesa-dev

**import** tensorflow **as** tf

**import** numpy **as** np

**from** tensorflow **import** keras

**import** os

**from** tensorflow.keras.preprocessing.image **import** ImageDataGenerator

**from** tensorflow.keras.preprocessing **import** image

ERROR: Could not find a version that satisfies the requirement libgl1-mesa-dev (from versions: none)

ERROR: No matching distribution found for libgl1-mesa-dev

**Define the parameters/arguments for ImageDataGenerator class**

In [94]:

train**=**ImageDataGenerator(rescale**=**1.**/**255,

shear\_range**=**0.2,

rotation\_range**=**180,

zoom\_range**=**0.2,

horizontal\_flip**=True**)

train **=** ImageDataGenerator(rescale**=**1**/**255)

test **=** ImageDataGenerator(rescale**=**1**/**255)

**Applying ImageDataGenerator functionality to trainset**

In [95]:

x\_train **=** train**.**flow\_from\_directory("/home/wsuser/work/Dataset/train\_set",

target\_size**=**(64,64),

batch\_size **=** 32,

class\_mode **=** 'binary' )

Found 436 images belonging to 2 classes.

**Applying ImageDataGenerator functionality to testset**

In [96]:

x\_test **=** test**.**flow\_from\_directory("/home/wsuser/work/Dataset/test\_set",

target\_size**=**(64,64),

batch\_size **=** 32,

class\_mode **=** 'binary' )

Found 121 images belonging to 2 classes.

In [97]:

x\_test**.**class\_indices

Out[97]:

{'forest': 0, 'with fire': 1}

**Import model building libraries**

In [98]:

*#to define linear initialisation import sequential*

**from** keras.models **import** Sequential

*#to add layer import Dense*

**from** keras.layers **import** Dense

*#to create convolution kernel import convolution2D*

**from** keras.layers **import** Convolution2D

*#import Maxpooling layer*

**from** keras.layers **import** MaxPooling2D

*#import flatten layer*

**from** keras.layers **import** Flatten

**import** warnings

warnings**.**filterwarnings('ignore')

**Initializing the model**

In [99]:

model **=**Sequential()

**Add CNN Layer**

In [100]:

model**.**add(Convolution2D(32,(3,3),input\_shape**=**(64,64,3),activation**=**'relu'))

*#add maxpooling layers*

model**.**add(MaxPooling2D(pool\_size**=**(2,2)))

*#add faltten layer*

model**.**add(Flatten())

**Add Hidden Layer**

In [101]:

*#add hidden layers*

model**.**add(Dense(150,activation**=**'relu'))

*#add output layer*

model**.**add(Dense(1,activation**=**'sigmoid'))

**Configure the learning process**

In [102]:

model**.**compile(loss **=** 'binary\_crossentropy',

optimizer **=** "adam",

metrics **=** ["accuracy"])

**Train the model**

In [103]:

model**.**fit\_generator(x\_train,steps\_per\_epoch**=**14,epochs**=**5,validation\_data**=**x\_test,validation\_steps**=**20)

Epoch 1/5

14/14 [==============================] - ETA: 0s - loss: 0.7689 - accuracy: 0.6628WARNING:tensorflow:Your input ran out of data; interrupting training. Make sure that your dataset or generator can generate at least `steps\_per\_epoch \* epochs` batches (in this case, 20 batches). You may need to use the repeat() function when building your dataset.

14/14 [==============================] - 21s 1s/step - loss: 0.7689 - accuracy: 0.6628 - val\_loss: 0.3151 - val\_accuracy: 0.8678

Epoch 2/5

14/14 [==============================] - 15s 1s/step - loss: 0.2759 - accuracy: 0.8853

Epoch 3/5

14/14 [==============================] - 14s 1s/step - loss: 0.1619 - accuracy: 0.9472

Epoch 4/5

14/14 [==============================] - 14s 1s/step - loss: 0.1192 - accuracy: 0.9541

Epoch 5/5

14/14 [==============================] - 14s 1s/step - loss: 0.1087 - accuracy: 0.9633

Out[103]:

**Save The Model**

In [104]:

model**.**save("/home/wsuser/work/archive(1)/forest1.h5")

**Predictions**

In [105]:

predictions **=** model**.**predict(x\_test)

predictions **=** np**.**round(predictions)

In [106]:

predictions

Out[106]:

array([[1.],

[1.],

[1.],

[0.],

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[1.]], dtype=float32)

In [107]:

print(len(predictions))

121

In [108]:

*#import load\_model from keras.model*

**from** keras.models **import** load\_model

*#import image class from keras*

**import** tensorflow **as** tf

**from** tensorflow.keras.preprocessing **import** image

*#import numpy*

**import** numpy **as** np

*#import cv2*

In [109]:

*#load the saved model*

model **=** load\_model("/home/wsuser/work/archive(1)/forest1.h5")

In [110]:

**def** predictImage(filename):

img1 **=** image**.**load\_img(filename,target\_size**=**(64,64))

Y **=** image**.**img\_to\_array(img1)

X **=** np**.**expand\_dims(Y,axis**=**0)

val **=** model**.**predict(X)

print(val)

**if** val **==** 1:

print(" fire")

**elif** val **==** 0:

print("no fire")

In [111]:

predictImage("/home/wsuser/work/Dataset/test\_set/with fire/19464620\_401.jpg")

WARNING:tensorflow:5 out of the last 12 calls to .predict\_function at 0x7f984fe019d0> triggered tf.function retracing. Tracing is expensive and the excessive number of tracings could be due to (1) creating @tf.function repeatedly in a loop, (2) passing tensors with different shapes, (3) passing Python objects instead of tensors. For (1), please define your @tf.function outside of the loop. For (2), @tf.function has experimental\_relax\_shapes=True option that relaxes argument shapes that can avoid unnecessary retracing. For (3), please refer to https://www.tensorflow.org/guide/function#controlling\_retracing and https://www.tensorflow.org/api\_docs/python/tf/function for more details.

[[1.]]

fire

**OpenCV For Video Processing**

In [75]:

pip install twilio

Collecting twilio

Downloading twilio-7.15.2-py2.py3-none-any.whl (1.4 MB)

|████████████████████████████████| 1.4 MB 16.7 MB/s eta 0:00:01

Requirement already satisfied: requests>=2.0.0 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from twilio) (2.26.0)

Requirement already satisfied: PyJWT<3.0.0,>=2.0.0 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from twilio) (2.4.0)

Requirement already satisfied: pytz in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from twilio) (2021.3)

Requirement already satisfied: idna<4,>=2.5 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from requests>=2.0.0->twilio) (3.3)

Requirement already satisfied: certifi>=2017.4.17 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from requests>=2.0.0->twilio) (2022.9.24)

Requirement already satisfied: urllib3<1.27,>=1.21.1 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from requests>=2.0.0->twilio) (1.26.7)

Requirement already satisfied: charset-normalizer~=2.0.0 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from requests>=2.0.0->twilio) (2.0.4)

Installing collected packages: twilio

Successfully installed twilio-7.15.2

Note: you may need to restart the kernel to use updated packages.

In [76]:

pip install playsound

Collecting playsound

Downloading playsound-1.3.0.tar.gz (7.7 kB)

Building wheels for collected packages: playsound

Building wheel for playsound (setup.py) ... done

Created wheel for playsound: filename=playsound-1.3.0-py3-none-any.whl size=7037 sha256=7a14e5d7212967bf1952d7558b36640342f7d1b687b5aa9dc5b0e950f2e73b31

Stored in directory: /tmp/wsuser/.cache/pip/wheels/ba/39/54/c8f7ff9a88a644d3c58b4dec802d90b79a2e0fb2a6b884bf82

Successfully built playsound

Installing collected packages: playsound

Successfully installed playsound-1.3.0

Note: you may need to restart the kernel to use updated packages.

In [112]:

*#import opencv librariy*

*#import cv2*

*#import numpy*

**import** numpy **as** np

*#import image function from keras*

**from** keras.preprocessing **import** image

*#import load\_model from keras*

**from** keras.models **import** load\_model

*#import client from twilio API*

**from** twilio.rest **import** Client

*#imort playsound package*

**from** playsound **import** playsound

In [113]:

*#load the saved model*

model **=** load\_model(r'/home/wsuser/work/archive(1)/forest1.h5')

*#define the features*

name **=** ['forest','with forest']

**Creating An Account In Twilio Service**

In [114]:

account\_sid**=**'ACfb4e6d0e7b0d25def63044919f1b96e3'

auth\_token**=**'f9ae4fc4a617a527da8672e97eefb2d8'

client**=**Client(account\_sid,auth\_token)

message**=**client**.**messages \

**.**create(

body**=**'Forest Fire is detected, stay alert',

from\_**=**'+1 302 248 4366',

to**=**'+91 99400 12164'

)

print(message**.**sid)

SMfa58e2bf0ede24f765cd7bc345ca795d

**Sending Alert Message**

In [81]:

pip install pygobject

Collecting pygobject

Downloading PyGObject-3.42.2.tar.gz (719 kB)

|████████████████████████████████| 719 kB 9.3 MB/s eta 0:00:01

Installing build dependencies ... error

ERROR: Command errored out with exit status 1:

command: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/pip-standalone-pip-emeystgt/\_\_env\_pip\_\_.zip/pip install --ignore-installed --no-user --prefix /tmp/wsuser/pip-build-env-lkmf16by/overlay --no-warn-script-location --no-binary :none: --only-binary :none: -i https://pypi.org/simple -- setuptools wheel pycairo

cwd: None

Complete output (38 lines):

Collecting setuptools

Downloading setuptools-65.5.1-py3-none-any.whl (1.2 MB)

Collecting wheel

Downloading wheel-0.38.4-py3-none-any.whl (36 kB)

Collecting pycairo

Downloading pycairo-1.21.0.tar.gz (340 kB)

Installing build dependencies: started

Installing build dependencies: finished with status 'done'

Getting requirements to build wheel: started

Getting requirements to build wheel: finished with status 'done'

Preparing wheel metadata: started

Preparing wheel metadata: finished with status 'done'

Building wheels for collected packages: pycairo

Building wheel for pycairo (PEP 517): started

Building wheel for pycairo (PEP 517): finished with status 'error'

ERROR: Command errored out with exit status 1:

command: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/tmp6f\_pv7zl\_in\_process.py build\_wheel /tmp/wsuser/tmp9ugp5t8u

cwd: /tmp/wsuser/pip-install-g0nlk595/pycairo\_8ee0a71e39c14024bc3c99a74592e9b4

Complete output (15 lines):

running bdist\_wheel

running build

running build\_py

creating build

creating build/lib.linux-x86\_64-cpython-39

creating build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/\_\_init\_\_.py -> build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/\_\_init\_\_.pyi -> build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/py.typed -> build/lib.linux-x86\_64-cpython-39/cairo

running build\_ext

Package cairo was not found in the pkg-config search path.

Perhaps you should add the directory containing `cairo.pc'

to the PKG\_CONFIG\_PATH environment variable

Package 'cairo', required by 'virtual:world', not found

Command '['pkg-config', '--print-errors', '--exists', 'cairo >= 1.15.10']' returned non-zero exit status 1.

----------------------------------------

ERROR: Failed building wheel for pycairo

Failed to build pycairo

ERROR: Could not build wheels for pycairo which use PEP 517 and cannot be installed directly

----------------------------------------

WARNING: Discarding https://files.pythonhosted.org/packages/fe/40/9afaeb8d3b453fb8596fcb6c7bc2b64e434868c91eda19955742778eff74/PyGObject-3.42.2.tar.gz#sha256=21524cef33100c8fd59dc135948b703d79d303e368ce71fa60521cc971cd8aa7 (from https://pypi.org/simple/pygobject/) (requires-python:>=3.6, <4). Command errored out with exit status 1: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/pip-standalone-pip-emeystgt/\_\_env\_pip\_\_.zip/pip install --ignore-installed --no-user --prefix /tmp/wsuser/pip-build-env-lkmf16by/overlay --no-warn-script-location --no-binary :none: --only-binary :none: -i https://pypi.org/simple -- setuptools wheel pycairo Check the logs for full command output.

Downloading PyGObject-3.42.1.tar.gz (718 kB)

|████████████████████████████████| 718 kB 51.7 MB/s eta 0:00:01

Installing build dependencies ... error

ERROR: Command errored out with exit status 1:

command: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/pip-standalone-pip-nxupggha/\_\_env\_pip\_\_.zip/pip install --ignore-installed --no-user --prefix /tmp/wsuser/pip-build-env-q\_zdbpt2/overlay --no-warn-script-location --no-binary :none: --only-binary :none: -i https://pypi.org/simple -- setuptools wheel pycairo

cwd: None

Complete output (38 lines):

Collecting setuptools

Using cached setuptools-65.5.1-py3-none-any.whl (1.2 MB)

Collecting wheel

Using cached wheel-0.38.4-py3-none-any.whl (36 kB)

Collecting pycairo

Using cached pycairo-1.21.0.tar.gz (340 kB)

Installing build dependencies: started

Installing build dependencies: finished with status 'done'

Getting requirements to build wheel: started

Getting requirements to build wheel: finished with status 'done'

Preparing wheel metadata: started

Preparing wheel metadata: finished with status 'done'

Building wheels for collected packages: pycairo

Building wheel for pycairo (PEP 517): started

Building wheel for pycairo (PEP 517): finished with status 'error'

ERROR: Command errored out with exit status 1:

command: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/tmp500lv4hx\_in\_process.py build\_wheel /tmp/wsuser/tmppdsziofg

cwd: /tmp/wsuser/pip-install-oav7v438/pycairo\_82221e31165f4f099211c145cc82388b

Complete output (15 lines):

running bdist\_wheel

running build

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creating build

creating build/lib.linux-x86\_64-cpython-39

creating build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/\_\_init\_\_.py -> build/lib.linux-x86\_64-cpython-39/cairo

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copying cairo/py.typed -> build/lib.linux-x86\_64-cpython-39/cairo

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ERROR: Failed building wheel for pycairo

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WARNING: Discarding https://files.pythonhosted.org/packages/41/d0/7eaebdca0723b267b96a8b7de2743cc223fbb47f651346b3e9b768acf8dd/PyGObject-3.42.1.tar.gz#sha256=80d6a3ad1630e9d1edf31b9e9fad9a894c57e18545a3c95ef0044ac4042b8620 (from https://pypi.org/simple/pygobject/) (requires-python:>=3.6, <4). Command errored out with exit status 1: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/pip-standalone-pip-nxupggha/\_\_env\_pip\_\_.zip/pip install --ignore-installed --no-user --prefix /tmp/wsuser/pip-build-env-q\_zdbpt2/overlay --no-warn-script-location --no-binary :none: --only-binary :none: -i https://pypi.org/simple -- setuptools wheel pycairo Check the logs for full command output.

Downloading PyGObject-3.42.0.tar.gz (716 kB)

|████████████████████████████████| 716 kB 56.3 MB/s eta 0:00:01 |█████████████████████████████▊ | 665 kB 56.3 MB/s eta 0:00:01

Installing build dependencies ... error

ERROR: Command errored out with exit status 1:

command: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/pip-standalone-pip-c69rxedh/\_\_env\_pip\_\_.zip/pip install --ignore-installed --no-user --prefix /tmp/wsuser/pip-build-env-xhdcyjv\_/overlay --no-warn-script-location --no-binary :none: --only-binary :none: -i https://pypi.org/simple -- setuptools wheel pycairo

cwd: None

Complete output (38 lines):

Collecting setuptools

Using cached setuptools-65.5.1-py3-none-any.whl (1.2 MB)

Collecting wheel

Using cached wheel-0.38.4-py3-none-any.whl (36 kB)

Collecting pycairo

Using cached pycairo-1.21.0.tar.gz (340 kB)

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Building wheels for collected packages: pycairo

Building wheel for pycairo (PEP 517): started

Building wheel for pycairo (PEP 517): finished with status 'error'

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command: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/tmpqje2d2h3\_in\_process.py build\_wheel /tmp/wsuser/tmpgm5ricg\_

cwd: /tmp/wsuser/pip-install-7lii05u2/pycairo\_bd74e7eadd29426fae493791d830597a

Complete output (15 lines):

running bdist\_wheel

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WARNING: Discarding https://files.pythonhosted.org/packages/cc/72/48cfdd7a0caf3c27f392d2657731ac6f7c3c1c0a60bfeba3e1ba9ffa7ba9/PyGObject-3.42.0.tar.gz#sha256=b9803991ec0b0b4175e81fee0ad46090fa7af438fe169348a9b18ae53447afcd (from https://pypi.org/simple/pygobject/) (requires-python:>=3.6, <4). Command errored out with exit status 1: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/pip-standalone-pip-c69rxedh/\_\_env\_pip\_\_.zip/pip install --ignore-installed --no-user --prefix /tmp/wsuser/pip-build-env-xhdcyjv\_/overlay --no-warn-script-location --no-binary :none: --only-binary :none: -i https://pypi.org/simple -- setuptools wheel pycairo Check the logs for full command output.

Downloading PyGObject-3.40.1.tar.gz (714 kB)

|████████████████████████████████| 714 kB 56.6 MB/s eta 0:00:01

Installing build dependencies ... error

ERROR: Command errored out with exit status 1:

command: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/pip-standalone-pip-upcmrgkj/\_\_env\_pip\_\_.zip/pip install --ignore-installed --no-user --prefix /tmp/wsuser/pip-build-env-vssdf0vc/overlay --no-warn-script-location --no-binary :none: --only-binary :none: -i https://pypi.org/simple -- setuptools wheel pycairo

cwd: None

Complete output (38 lines):

Collecting setuptools

Using cached setuptools-65.5.1-py3-none-any.whl (1.2 MB)

Collecting wheel

Using cached wheel-0.38.4-py3-none-any.whl (36 kB)

Collecting pycairo

Using cached pycairo-1.21.0.tar.gz (340 kB)

Installing build dependencies: started

Installing build dependencies: finished with status 'done'

Getting requirements to build wheel: started

Getting requirements to build wheel: finished with status 'done'

Preparing wheel metadata: started

Preparing wheel metadata: finished with status 'done'

Building wheels for collected packages: pycairo

Building wheel for pycairo (PEP 517): started

Building wheel for pycairo (PEP 517): finished with status 'error'

ERROR: Command errored out with exit status 1:

command: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/tmpldzz1u7p\_in\_process.py build\_wheel /tmp/wsuser/tmpagh8im7d

cwd: /tmp/wsuser/pip-install-se5z7j4o/pycairo\_eda2926bd0a343d189cf6d2ff0781ed7

Complete output (15 lines):

running bdist\_wheel

running build

running build\_py

creating build

creating build/lib.linux-x86\_64-cpython-39

creating build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/\_\_init\_\_.py -> build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/\_\_init\_\_.pyi -> build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/py.typed -> build/lib.linux-x86\_64-cpython-39/cairo

running build\_ext

Package cairo was not found in the pkg-config search path.

Perhaps you should add the directory containing `cairo.pc'

to the PKG\_CONFIG\_PATH environment variable

Package 'cairo', required by 'virtual:world', not found

Command '['pkg-config', '--print-errors', '--exists', 'cairo >= 1.15.10']' returned non-zero exit status 1.

----------------------------------------

ERROR: Failed building wheel for pycairo

Failed to build pycairo

ERROR: Could not build wheels for pycairo which use PEP 517 and cannot be installed directly

----------------------------------------

WARNING: Discarding https://files.pythonhosted.org/packages/51/2f/4d5d5afb7000b9151e33952b59163c9389bd867ac6fe85d62f85831fa061/PyGObject-3.40.1.tar.gz#sha256=6fb599aa59ceb9dd05fafb0d72b3862943e7d5e85c8ef6c74856bc6d4321cbab (from https://pypi.org/simple/pygobject/) (requires-python:>=3.6, <4). Command errored out with exit status 1: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/pip-standalone-pip-upcmrgkj/\_\_env\_pip\_\_.zip/pip install --ignore-installed --no-user --prefix /tmp/wsuser/pip-build-env-vssdf0vc/overlay --no-warn-script-location --no-binary :none: --only-binary :none: -i https://pypi.org/simple -- setuptools wheel pycairo Check the logs for full command output.

Downloading PyGObject-3.40.0.tar.gz (714 kB)

|████████████████████████████████| 714 kB 63.1 MB/s eta 0:00:01

Installing build dependencies ... error

ERROR: Command errored out with exit status 1:

command: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/pip-standalone-pip-6jz5e22z/\_\_env\_pip\_\_.zip/pip install --ignore-installed --no-user --prefix /tmp/wsuser/pip-build-env-6\_7hdgvd/overlay --no-warn-script-location --no-binary :none: --only-binary :none: -i https://pypi.org/simple -- setuptools wheel pycairo

cwd: None

Complete output (38 lines):

Collecting setuptools

Using cached setuptools-65.5.1-py3-none-any.whl (1.2 MB)

Collecting wheel

Using cached wheel-0.38.4-py3-none-any.whl (36 kB)

Collecting pycairo

Using cached pycairo-1.21.0.tar.gz (340 kB)

Installing build dependencies: started

Installing build dependencies: finished with status 'done'

Getting requirements to build wheel: started

Getting requirements to build wheel: finished with status 'done'

Preparing wheel metadata: started

Preparing wheel metadata: finished with status 'done'

Building wheels for collected packages: pycairo

Building wheel for pycairo (PEP 517): started

Building wheel for pycairo (PEP 517): finished with status 'error'

ERROR: Command errored out with exit status 1:

command: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/tmpevdp83t\_\_in\_process.py build\_wheel /tmp/wsuser/tmpb55sh2ws

cwd: /tmp/wsuser/pip-install-5\_zcoacc/pycairo\_e5999875c1264e48b390e0d4f4eb93e5

Complete output (15 lines):

running bdist\_wheel

running build

running build\_py

creating build

creating build/lib.linux-x86\_64-cpython-39

creating build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/\_\_init\_\_.py -> build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/\_\_init\_\_.pyi -> build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/py.typed -> build/lib.linux-x86\_64-cpython-39/cairo

running build\_ext

Package cairo was not found in the pkg-config search path.

Perhaps you should add the directory containing `cairo.pc'

to the PKG\_CONFIG\_PATH environment variable

Package 'cairo', required by 'virtual:world', not found

Command '['pkg-config', '--print-errors', '--exists', 'cairo >= 1.15.10']' returned non-zero exit status 1.

----------------------------------------

ERROR: Failed building wheel for pycairo

Failed to build pycairo

ERROR: Could not build wheels for pycairo which use PEP 517 and cannot be installed directly

----------------------------------------

WARNING: Discarding https://files.pythonhosted.org/packages/a0/fa/0cfaa64ad7a4cd94fd74b698fcc8987ed780fce1651fecc6604f86f604cd/PyGObject-3.40.0.tar.gz#sha256=98d83f71e6313dadc29793450fec23b2eaa5c3f1c4b073d0a4f9c31b5cdb5fca (from https://pypi.org/simple/pygobject/) (requires-python:>=3.6, <4). Command errored out with exit status 1: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/pip-standalone-pip-6jz5e22z/\_\_env\_pip\_\_.zip/pip install --ignore-installed --no-user --prefix /tmp/wsuser/pip-build-env-6\_7hdgvd/overlay --no-warn-script-location --no-binary :none: --only-binary :none: -i https://pypi.org/simple -- setuptools wheel pycairo Check the logs for full command output.

Downloading PyGObject-3.38.0.tar.gz (712 kB)

|████████████████████████████████| 712 kB 38.4 MB/s eta 0:00:01

Installing build dependencies ... error

ERROR: Command errored out with exit status 1:

command: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/pip-standalone-pip-h2x28x3g/\_\_env\_pip\_\_.zip/pip install --ignore-installed --no-user --prefix /tmp/wsuser/pip-build-env-xv9hjs9n/overlay --no-warn-script-location --no-binary :none: --only-binary :none: -i https://pypi.org/simple -- setuptools wheel pycairo

cwd: None

Complete output (38 lines):

Collecting setuptools

Using cached setuptools-65.5.1-py3-none-any.whl (1.2 MB)

Collecting wheel

Using cached wheel-0.38.4-py3-none-any.whl (36 kB)

Collecting pycairo

Using cached pycairo-1.21.0.tar.gz (340 kB)

Installing build dependencies: started

Installing build dependencies: finished with status 'done'

Getting requirements to build wheel: started

Getting requirements to build wheel: finished with status 'done'

Preparing wheel metadata: started

Preparing wheel metadata: finished with status 'done'

Building wheels for collected packages: pycairo

Building wheel for pycairo (PEP 517): started

Building wheel for pycairo (PEP 517): finished with status 'error'

ERROR: Command errored out with exit status 1:

command: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/tmprvky\_koj\_in\_process.py build\_wheel /tmp/wsuser/tmp6hmoleo0

cwd: /tmp/wsuser/pip-install-pusq3qk1/pycairo\_ee979114e653462197d7062856ffd7ee

Complete output (15 lines):

running bdist\_wheel

running build

running build\_py

creating build

creating build/lib.linux-x86\_64-cpython-39

creating build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/\_\_init\_\_.py -> build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/\_\_init\_\_.pyi -> build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/py.typed -> build/lib.linux-x86\_64-cpython-39/cairo

running build\_ext

Package cairo was not found in the pkg-config search path.

Perhaps you should add the directory containing `cairo.pc'

to the PKG\_CONFIG\_PATH environment variable

Package 'cairo', required by 'virtual:world', not found

Command '['pkg-config', '--print-errors', '--exists', 'cairo >= 1.15.10']' returned non-zero exit status 1.

----------------------------------------

ERROR: Failed building wheel for pycairo

Failed to build pycairo

ERROR: Could not build wheels for pycairo which use PEP 517 and cannot be installed directly

----------------------------------------

WARNING: Discarding https://files.pythonhosted.org/packages/3a/a7/de282a4aaedba59d60a895a7821e6497b39cbdfa94a352776ff45ffc6e6f/PyGObject-3.38.0.tar.gz#sha256=051b950f509f2e9f125add96c1493bde987c527f7a0c15a1f7b69d6d1c3cd8e6 (from https://pypi.org/simple/pygobject/) (requires-python:>=3.5, <4). Command errored out with exit status 1: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/pip-standalone-pip-h2x28x3g/\_\_env\_pip\_\_.zip/pip install --ignore-installed --no-user --prefix /tmp/wsuser/pip-build-env-xv9hjs9n/overlay --no-warn-script-location --no-binary :none: --only-binary :none: -i https://pypi.org/simple -- setuptools wheel pycairo Check the logs for full command output.

Downloading PyGObject-3.36.1.tar.gz (716 kB)

|████████████████████████████████| 716 kB 58.2 MB/s eta 0:00:01

Installing build dependencies ... error

ERROR: Command errored out with exit status 1:

command: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/pip-standalone-pip-utcgu2y3/\_\_env\_pip\_\_.zip/pip install --ignore-installed --no-user --prefix /tmp/wsuser/pip-build-env-kmc2o59p/overlay --no-warn-script-location --no-binary :none: --only-binary :none: -i https://pypi.org/simple -- setuptools wheel pycairo

cwd: None

Complete output (38 lines):

Collecting setuptools

Using cached setuptools-65.5.1-py3-none-any.whl (1.2 MB)

Collecting wheel

Using cached wheel-0.38.4-py3-none-any.whl (36 kB)

Collecting pycairo

Using cached pycairo-1.21.0.tar.gz (340 kB)

Installing build dependencies: started

Installing build dependencies: finished with status 'done'

Getting requirements to build wheel: started

Getting requirements to build wheel: finished with status 'done'

Preparing wheel metadata: started

Preparing wheel metadata: finished with status 'done'

Building wheels for collected packages: pycairo

Building wheel for pycairo (PEP 517): started

Building wheel for pycairo (PEP 517): finished with status 'error'

ERROR: Command errored out with exit status 1:

command: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/tmpbn0c6t2p\_in\_process.py build\_wheel /tmp/wsuser/tmpsrncjz71

cwd: /tmp/wsuser/pip-install-c6xj0d2d/pycairo\_9aee589e2f774ceeae669ae25ae967ad

Complete output (15 lines):

running bdist\_wheel

running build

running build\_py

creating build

creating build/lib.linux-x86\_64-cpython-39

creating build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/\_\_init\_\_.py -> build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/\_\_init\_\_.pyi -> build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/py.typed -> build/lib.linux-x86\_64-cpython-39/cairo

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Package cairo was not found in the pkg-config search path.

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----------------------------------------

ERROR: Failed building wheel for pycairo

Failed to build pycairo

ERROR: Could not build wheels for pycairo which use PEP 517 and cannot be installed directly

----------------------------------------

WARNING: Discarding https://files.pythonhosted.org/packages/93/41/bf9ab8929f51dac2979ae81bb094728bacee3ceb049def72d3fc1bcb4241/PyGObject-3.36.1.tar.gz#sha256=012a589aec687bfa809a1ff9f5cd775dc7f6fcec1a6bc7fe88e1002a68f8ba34 (from https://pypi.org/simple/pygobject/) (requires-python:>=2.7, !=3.0.\*, !=3.1.\*, !=3.2.\*, !=3.3.\*, !=3.4.\*, <4). Command errored out with exit status 1: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/pip-standalone-pip-utcgu2y3/\_\_env\_pip\_\_.zip/pip install --ignore-installed --no-user --prefix /tmp/wsuser/pip-build-env-kmc2o59p/overlay --no-warn-script-location --no-binary :none: --only-binary :none: -i https://pypi.org/simple -- setuptools wheel pycairo Check the logs for full command output.

Downloading PyGObject-3.36.0.tar.gz (714 kB)

|████████████████████████████████| 714 kB 66.5 MB/s eta 0:00:01

Installing build dependencies ... error

ERROR: Command errored out with exit status 1:

command: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/pip-standalone-pip-\_39n1cer/\_\_env\_pip\_\_.zip/pip install --ignore-installed --no-user --prefix /tmp/wsuser/pip-build-env-ntifvcvj/overlay --no-warn-script-location --no-binary :none: --only-binary :none: -i https://pypi.org/simple -- setuptools wheel pycairo

cwd: None

Complete output (38 lines):

Collecting setuptools

Using cached setuptools-65.5.1-py3-none-any.whl (1.2 MB)

Collecting wheel

Using cached wheel-0.38.4-py3-none-any.whl (36 kB)

Collecting pycairo

Using cached pycairo-1.21.0.tar.gz (340 kB)

Installing build dependencies: started

Installing build dependencies: finished with status 'done'

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Building wheels for collected packages: pycairo

Building wheel for pycairo (PEP 517): started

Building wheel for pycairo (PEP 517): finished with status 'error'

ERROR: Command errored out with exit status 1:

command: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/tmpmvnl7yum\_in\_process.py build\_wheel /tmp/wsuser/tmpjrjxxj86

cwd: /tmp/wsuser/pip-install-9p43s\_kb/pycairo\_4e1056e04593421ead04d7dc96ed32f6

Complete output (15 lines):

running bdist\_wheel

running build

running build\_py

creating build

creating build/lib.linux-x86\_64-cpython-39

creating build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/\_\_init\_\_.py -> build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/\_\_init\_\_.pyi -> build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/py.typed -> build/lib.linux-x86\_64-cpython-39/cairo

running build\_ext

Package cairo was not found in the pkg-config search path.

Perhaps you should add the directory containing `cairo.pc'

to the PKG\_CONFIG\_PATH environment variable

Package 'cairo', required by 'virtual:world', not found

Command '['pkg-config', '--print-errors', '--exists', 'cairo >= 1.15.10']' returned non-zero exit status 1.

----------------------------------------

ERROR: Failed building wheel for pycairo

Failed to build pycairo

ERROR: Could not build wheels for pycairo which use PEP 517 and cannot be installed directly

----------------------------------------

WARNING: Discarding https://files.pythonhosted.org/packages/3e/b5/f4fd3351ed074aeeae30bff71428f38bc42187e34c44913239a9dc85a7fc/PyGObject-3.36.0.tar.gz#sha256=b97f570e55017fcd3732164811f24ecf63983a4834f61b55b0aaf64ecefac856 (from https://pypi.org/simple/pygobject/) (requires-python:>=2.7, !=3.0.\*, !=3.1.\*, !=3.2.\*, !=3.3.\*, !=3.4.\*, <4). Command errored out with exit status 1: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/pip-standalone-pip-\_39n1cer/\_\_env\_pip\_\_.zip/pip install --ignore-installed --no-user --prefix /tmp/wsuser/pip-build-env-ntifvcvj/overlay --no-warn-script-location --no-binary :none: --only-binary :none: -i https://pypi.org/simple -- setuptools wheel pycairo Check the logs for full command output.

Downloading PyGObject-3.34.0.tar.gz (699 kB)

|████████████████████████████████| 699 kB 57.4 MB/s eta 0:00:01

Installing build dependencies ... error

ERROR: Command errored out with exit status 1:

command: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/pip-standalone-pip-62lfrrwt/\_\_env\_pip\_\_.zip/pip install --ignore-installed --no-user --prefix /tmp/wsuser/pip-build-env-w\_5uvqoa/overlay --no-warn-script-location --no-binary :none: --only-binary :none: -i https://pypi.org/simple -- setuptools wheel pycairo

cwd: None

Complete output (38 lines):

Collecting setuptools

Using cached setuptools-65.5.1-py3-none-any.whl (1.2 MB)

Collecting wheel

Using cached wheel-0.38.4-py3-none-any.whl (36 kB)

Collecting pycairo

Using cached pycairo-1.21.0.tar.gz (340 kB)

Installing build dependencies: started

Installing build dependencies: finished with status 'done'

Getting requirements to build wheel: started

Getting requirements to build wheel: finished with status 'done'

Preparing wheel metadata: started

Preparing wheel metadata: finished with status 'done'

Building wheels for collected packages: pycairo

Building wheel for pycairo (PEP 517): started

Building wheel for pycairo (PEP 517): finished with status 'error'

ERROR: Command errored out with exit status 1:

command: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/tmpjkryarup\_in\_process.py build\_wheel /tmp/wsuser/tmpy7low2cn

cwd: /tmp/wsuser/pip-install-546gq7ve/pycairo\_830bac311023487993b77f80ea531ad1

Complete output (15 lines):

running bdist\_wheel

running build

running build\_py

creating build

creating build/lib.linux-x86\_64-cpython-39

creating build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/\_\_init\_\_.py -> build/lib.linux-x86\_64-cpython-39/cairo

copying cairo/\_\_init\_\_.pyi -> build/lib.linux-x86\_64-cpython-39/cairo

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Command '['pkg-config', '--print-errors', '--exists', 'cairo >= 1.15.10']' returned non-zero exit status 1.

----------------------------------------

ERROR: Failed building wheel for pycairo

Failed to build pycairo

ERROR: Could not build wheels for pycairo which use PEP 517 and cannot be installed directly

----------------------------------------

WARNING: Discarding https://files.pythonhosted.org/packages/46/8a/b183f3edc812d4d28c8b671a922b5bc2863be5d38c56b3ad9155815e78dd/PyGObject-3.34.0.tar.gz#sha256=2acb0daf2b3a23a90f52066cc23d1053339fee2f5f7f4275f8baa3704ae0c543 (from https://pypi.org/simple/pygobject/) (requires-python:>=2.7, !=3.0.\*, !=3.1.\*, !=3.2.\*, !=3.3.\*, !=3.4.\*, <4). Command errored out with exit status 1: /opt/conda/envs/Python-3.9/bin/python /tmp/wsuser/pip-standalone-pip-62lfrrwt/\_\_env\_pip\_\_.zip/pip install --ignore-installed --no-user --prefix /tmp/wsuser/pip-build-env-w\_5uvqoa/overlay --no-warn-script-location --no-binary :none: --only-binary :none: -i https://pypi.org/simple -- setuptools wheel pycairo Check the logs for full command output.

Downloading PyGObject-3.32.2.tar.gz (698 kB)

|████████████████████████████████| 698 kB 39.5 MB/s eta 0:00:01

^C

Installing build dependencies ... canceled

ERROR: Operation cancelled by user

Note: you may need to restart the kernel to use updated packages.

In [115]:

**def** message(val):

**if** val**==**1:

**from** twilio.rest **import** Client

print('Forest fire')

account\_sid**=**'ACfb4e6d0e7b0d25def63044919f1b96e3'

auth\_token**=**'f9ae4fc4a617a527da8672e97eefb2d8'

client**=**Client(account\_sid,auth\_token)

message**=**client**.**messages \

**.**create(

body**=**'forest fire is detected, stay alert',

*#use twilio free number*

from\_**=**'+1 302 248 4366',

*#to number*

to**=**'+91 99400 12164')

print(message**.**sid)

print("Fire detected")

print("SMS Sent!")

**elif** val**==**0:

print('No Fire')

In [116]:

**from** matplotlib **import** pyplot **as** plt

*#import load model from keras.model*

**from** keras.models **import** load\_model

*#import image from keras*

**from** tensorflow.keras.preprocessing **import** image

img1 **=** image**.**load\_img('/home/wsuser/work/Dataset/test\_set/with fire/Wild\_fires.jpg',target\_size**=**(64,64))

Y **=** image**.**img\_to\_array(img1)

x **=** np**.**expand\_dims(Y,axis**=**0)

val **=** model**.**predict(x)

plt**.**imshow(img1)

plt**.**show()

message(val)

WARNING:tensorflow:6 out of the last 13 calls to .predict\_function at 0x7f984fe36820> triggered tf.function retracing. Tracing is expensive and the excessive number of tracings could be due to (1) creating @tf.function repeatedly in a loop, (2) passing tensors with different shapes, (3) passing Python objects instead of tensors. For (1), please define your @tf.function outside of the loop. For (2), @tf.function has experimental\_relax\_shapes=True option that relaxes argument shapes that can avoid unnecessary retracing. For (3), please refer to https://www.tensorflow.org/guide/function#controlling\_retracing and https://www.tensorflow.org/api\_docs/python/tf/function for more details.



Forest fire

SM90c5f1e42f00ef91e0d7497f8db60527

Fire detected

SMS Sent!

In [117]:

img2 **=** image**.**load\_img('/home/wsuser/work/Dataset/test\_set/forest/1200px\_Mountainarea.jpg',target\_size**=**(64,64))

Y **=** image**.**img\_to\_array(img2)

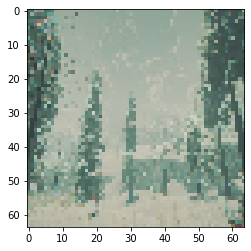
x **=** np**.**expand\_dims(Y,axis**=**0)

val **=** model**.**predict(x)

plt**.**imshow(img2)

plt**.**show()

message(val)



No Fire

In [119]:

**from** ibm\_watson\_machine\_learning **import** APIClient

wml\_credentials**=**{"url":"https://us-south.ml.cloud.ibm.com","apikey":"TFXoHzN3M76f8UM68mdo\_MshGtF2Dk1H56fJ67oDagbV"}

client**=**APIClient(wml\_credentials)

In [120]:

**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 [121]:

space\_uid**=**guid\_from\_space\_name(client,'imageclassification')

print("Space UID= "**+**space\_uid)

Space UID= 1f4924ef-b4eb-471f-a528-7b437fc3efb9

In [122]:

client**.**set**.**default\_space(space\_uid)

Out[122]:

'SUCCESS'

In [123]:

client**.**software\_specifications**.**list()

----------------------------- ------------------------------------ ----

NAME ASSET\_ID TYPE

default\_py3.6 0062b8c9-8b7d-44a0-a9b9-46c416adcbd9 base

kernel-spark3.2-scala2.12 020d69ce-7ac1-5e68-ac1a-31189867356a base

pytorch-onnx\_1.3-py3.7-edt 069ea134-3346-5748-b513-49120e15d288 base

scikit-learn\_0.20-py3.6 09c5a1d0-9c1e-4473-a344-eb7b665ff687 base

spark-mllib\_3.0-scala\_2.12 09f4cff0-90a7-5899-b9ed-1ef348aebdee base

pytorch-onnx\_rt22.1-py3.9 0b848dd4-e681-5599-be41-b5f6fccc6471 base

ai-function\_0.1-py3.6 0cdb0f1e-5376-4f4d-92dd-da3b69aa9bda base

shiny-r3.6 0e6e79df-875e-4f24-8ae9-62dcc2148306 base

tensorflow\_2.4-py3.7-horovod 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-bf776828c4b7 base

autoai-kb\_rt22.2-py3.10 125b6d9a-5b1f-5e8d-972a-b251688ccf40 base

runtime-22.1-py3.9 12b83a17-24d8-5082-900f-0ab31fbfd3cb base

scikit-learn\_0.22-py3.6 154010fa-5b3b-4ac1-82af-4d5ee5abbc85 base

default\_r3.6 1b70aec3-ab34-4b87-8aa0-a4a3c8296a36 base

pytorch-onnx\_1.3-py3.6 1bc6029a-cc97-56da-b8e0-39c3880dbbe7 base

kernel-spark3.3-r3.6 1c9e5454-f216-59dd-a20e-474a5cdf5988 base

pytorch-onnx\_rt22.1-py3.9-edt 1d362186-7ad5-5b59-8b6c-9d0880bde37f base

tensorflow\_2.1-py3.6 1eb25b84-d6ed-5dde-b6a5-3fbdf1665666 base

spark-mllib\_3.2 20047f72-0a98-58c7-9ff5-a77b012eb8f5 base

tensorflow\_2.4-py3.8-horovod 217c16f6-178f-56bf-824a-b19f20564c49 base

runtime-22.1-py3.9-cuda 26215f05-08c3-5a41-a1b0-da66306ce658 base

do\_py3.8 295addb5-9ef9-547e-9bf4-92ae3563e720 base

autoai-ts\_3.8-py3.8 2aa0c932-798f-5ae9-abd6-15e0c2402fb5 base

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spark-mllib\_2.3 2e51f700-bca0-4b0d-88dc-5c6791338875 base

pytorch-onnx\_1.1-py3.6-edt 32983cea-3f32-4400-8965-dde874a8d67e base

spark-mllib\_3.0-py37 36507ebe-8770-55ba-ab2a-eafe787600e9 base

spark-mllib\_2.4 390d21f8-e58b-4fac-9c55-d7ceda621326 base

autoai-ts\_rt22.2-py3.10 396b2e83-0953-5b86-9a55-7ce1628a406f base

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pmml-3.0\_4.3 493bcb95-16f1-5bc5-bee8-81b8af80e9c7 base

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spark-mllib\_3.0 5c1b0ca2-4977-5c2e-9439-ffd44ea8ffe9 base

autoai-obm\_2.0 5c2e37fa-80b8-5e77-840f-d912469614ee base

spss-modeler\_18.1 5c3cad7e-507f-4b2a-a9a3-ab53a21dee8b base

cuda-py3.8 5d3232bf-c86b-5df4-a2cd-7bb870a1cd4e base

autoai-kb\_3.1-py3.7 632d4b22-10aa-5180-88f0-f52dfb6444d7 base

pytorch-onnx\_1.7-py3.8 634d3cdc-b562-5bf9-a2d4-ea90a478456b base

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

In [126]:

software\_spec\_uid**=**client**.**software\_specifications**.**get\_uid\_by\_name("tensorflow\_1.15-py3.6")

software\_spec\_uid

Out[126]:

'2b73a275-7cbf-420b-a912-eae7f436e0bc'

In [128]:

keras