IMAGE RECOGNITION WITH IBM CLOUD VISUAL RECOGNITION

INTRODUCTION:

Many times, you want to search a restaurant which serves a specific dish. And you know the possibility of remembering name of that dish is bleak, but you took a picture last time you had it. In such situation a feature to search a dish by image is sorely missed. In this blog we are going to learn how to create an application to find restaurants with the help of food image you have. You will also learn how to work with IBM Watson for Visual Recognition and use HERE location services for maps and location analytics.

POWER AI VISION:

PowerAI Vision is an AI application that includes the most popular open source deep learning frameworks and is developed for easy and rapid deployment. It provides complete workflow support for computer vision deep learning that includes lifecycle management from installation and configuration, to data labeling, model training, inferencing and moving models into production. By combining PowerAI Vision with IBM Power Systems servers, organizations can rapidly deploy a fully optimized AI platform with great performance.

Types of image recognition in PowerAI Vision:

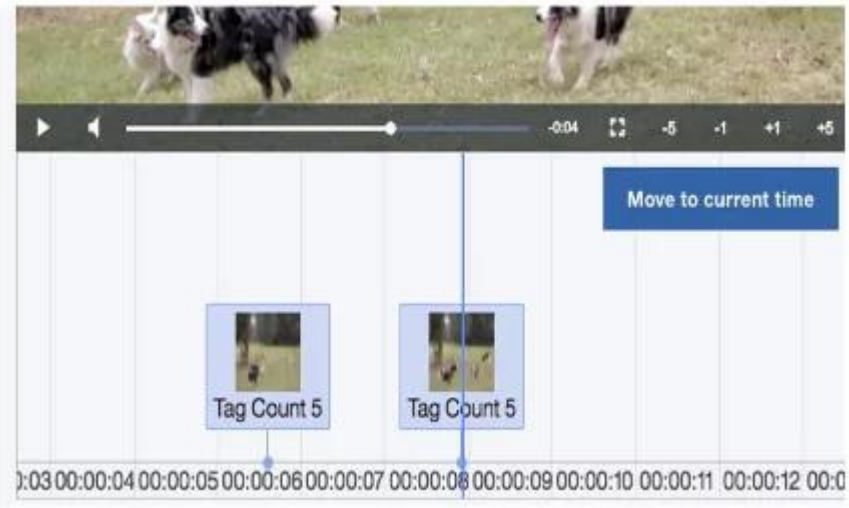
PowerAI Vision can be used to make your own neural network model for varying types of image classification and detection:

Static image classification. Determine whether an image belongs to one or more classes based on overall image contents (for example, "Determine the species of dog in the image").

japanese_spaniel: 1.00000

Static image object detection. Determine and label the contents of an image based on user-defined data labels (for example, “Locate and label all dogs in the image”).

Video object detection. Determine and label the contents of an uploaded video based on user-defined data labels (for example, “Locate and label all dogs in the video”).



PowerAI Vision makes data uploading, manual labeling, auto-labeling, model training and testing easy for the user. Auto-labeling, in particular, is a good example of the definition of machine learning ("The field of study that gives computers the ability to learn without being explicitly programmed," according to Arthur Samuel in 1959). If you auto-label a data set, an existing trained model is used to generate labels for images and video frames that have not been manually labeled, which can dramatically shrink the time required for the deep learning process. This is an area in which PowerAI stands apart from competing solutions.

Putting PowerAI Vision to work:

There are many ways to use PowerAI Vision. Here are a few examples:

Drone surveillance for energy and utilities. Power companies rely on human labor to visually inspect their towers covering large geographic areas. These manual inspections are notorious for being expensive, risky and slow, especially when the towers are spread over mountainous or inaccessible terrain. As a solution, power companies can transform inspection jobs by deploying drones with cameras and adopting PowerAI Vision. In the energy and utilities industries, PowerAI Vision can help save time, increase inspection frequency and reduce risk to workers.

Ensuring the safety of workers. According to the International Labor Organization, some 2.3 million women and men around the world succumb to work-related accidents or diseases every year. Work accidents remain a huge, cross-industry problem, despite safety regulations and procedures. Visual recognition AI technologies can be used to monitor and enforce safety regulations. For example, PowerAI Vision can alert workers when entering hazardous environments or scan a construction area to alert supervisors when they need to act.

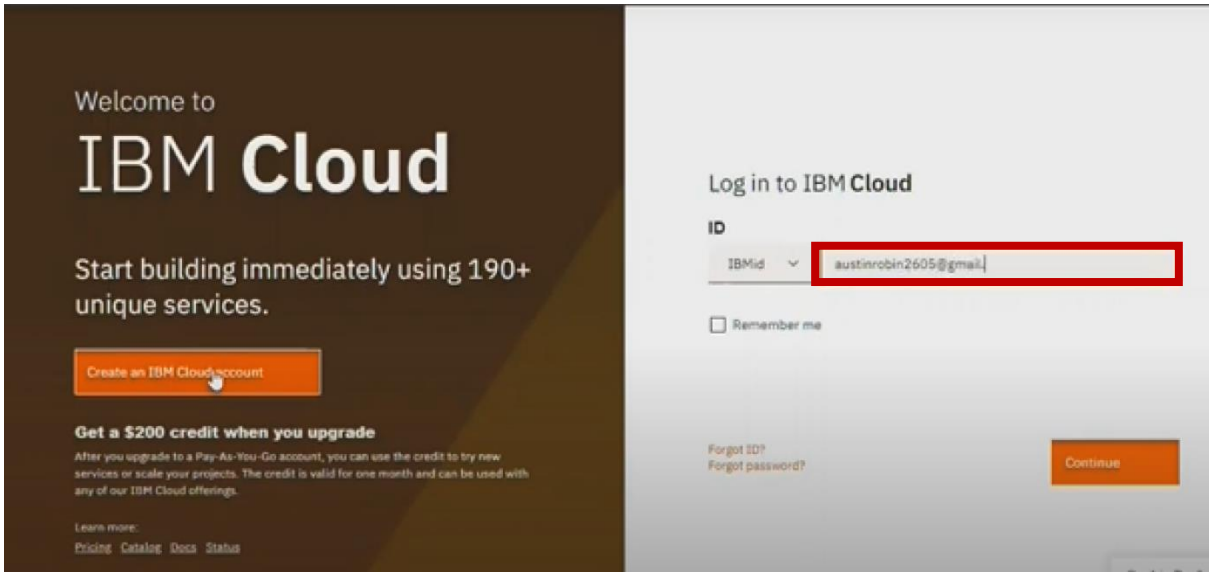
Visual insights for quality. Manufacturing operations use raw-visual confirmation to ensure that parts have zero defects. The volume of inspections and the variety of defects raise challenges to delivering high-quality products. PowerAI Vision can be used to deploy a deep learning model on factory floors to ensure little decision latency during production and deliver reliable results with low escape rates.

PowerAI Vision can be used for numerous other applications, such as city traffic management, market customer analysis and X-ray inspection in airports. Deep learning is still relatively young, so it will be exciting to see where else this technology will be applied in the future.

BY USING IBM IMPLEMENTATION OF THE IMAGE CLASSIFICATION PROCESS CLOUD VISUAL RECOGNITION API

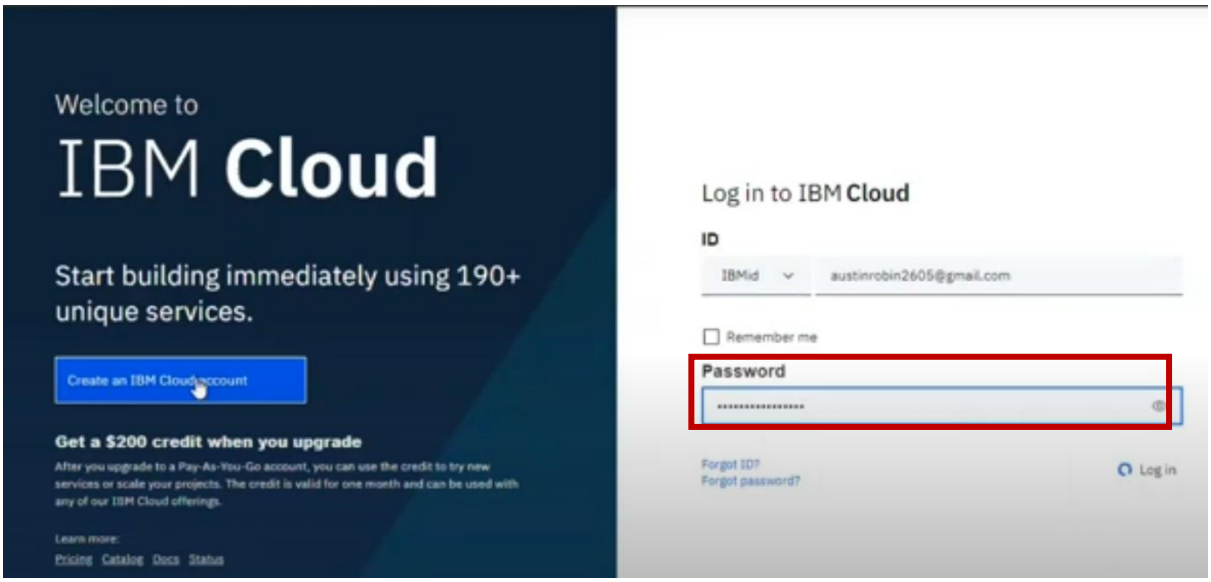
STEP 1:

Open IBM cloud and login into a user name



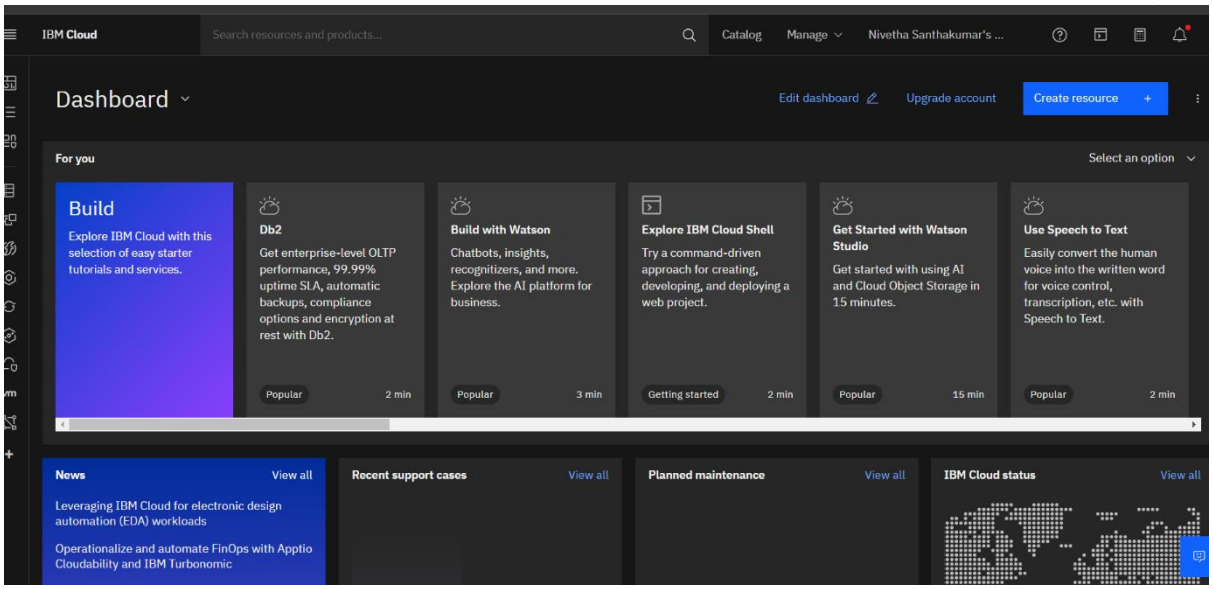
STEP 2:

Enter your password



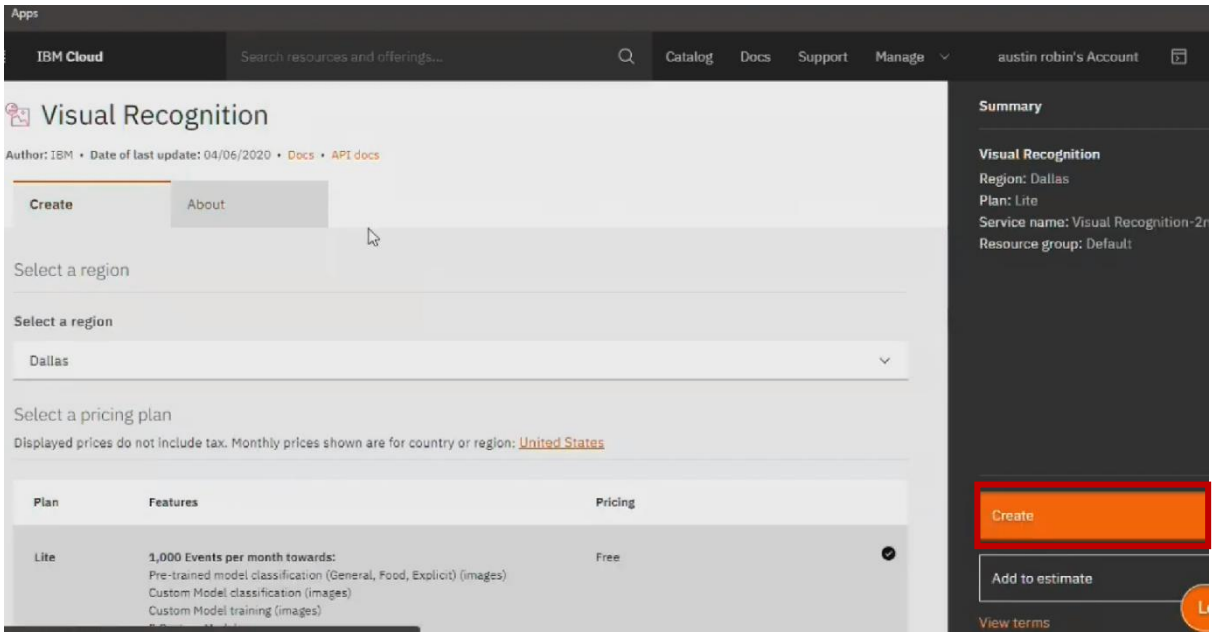
STEP 3:

As soon as you login into the dashboard , it consists of several cloud services. Go the search bar and search for visual recognition the click on it.



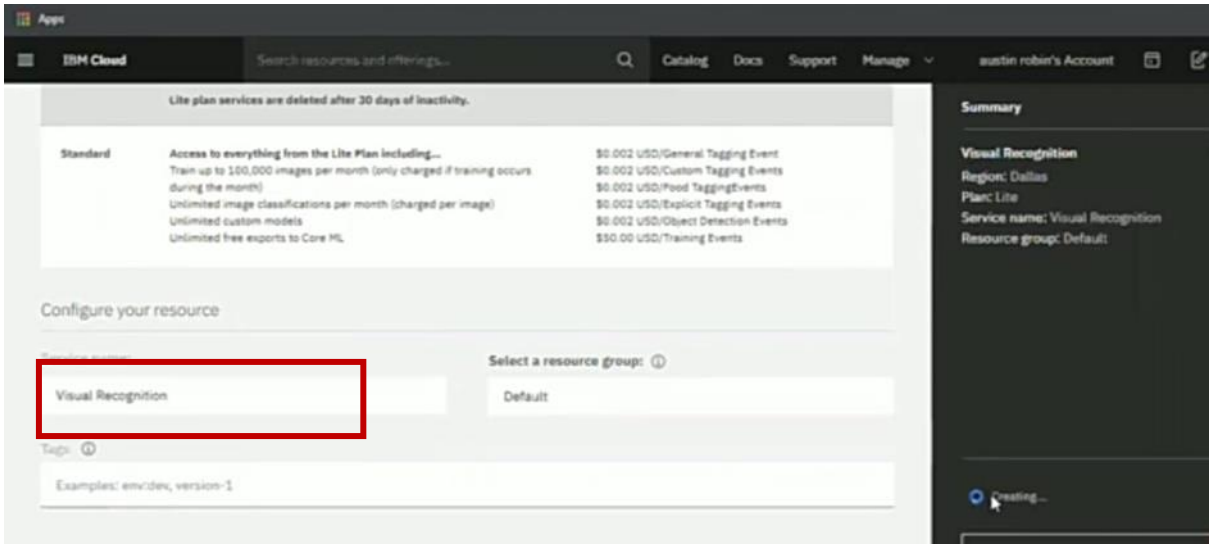
STEP 4:

In this we are using IBM cloud because it provides free plans.IBM cloud services free forever



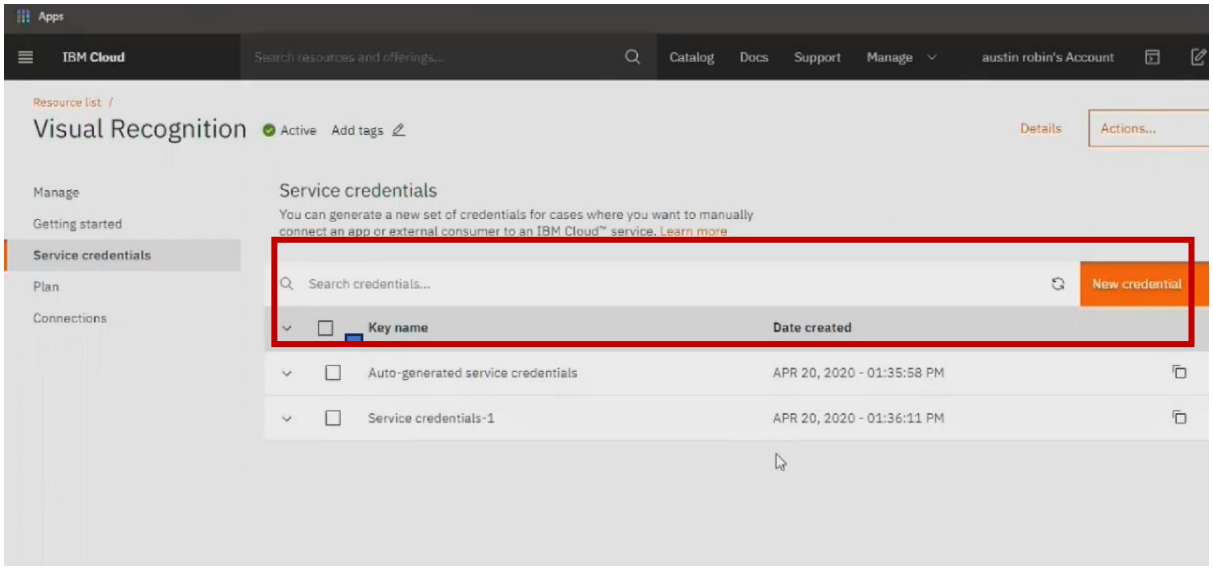
STEP 5:

Enter your name for the service then click on create button now our IBM cloud visualization service is successfully created



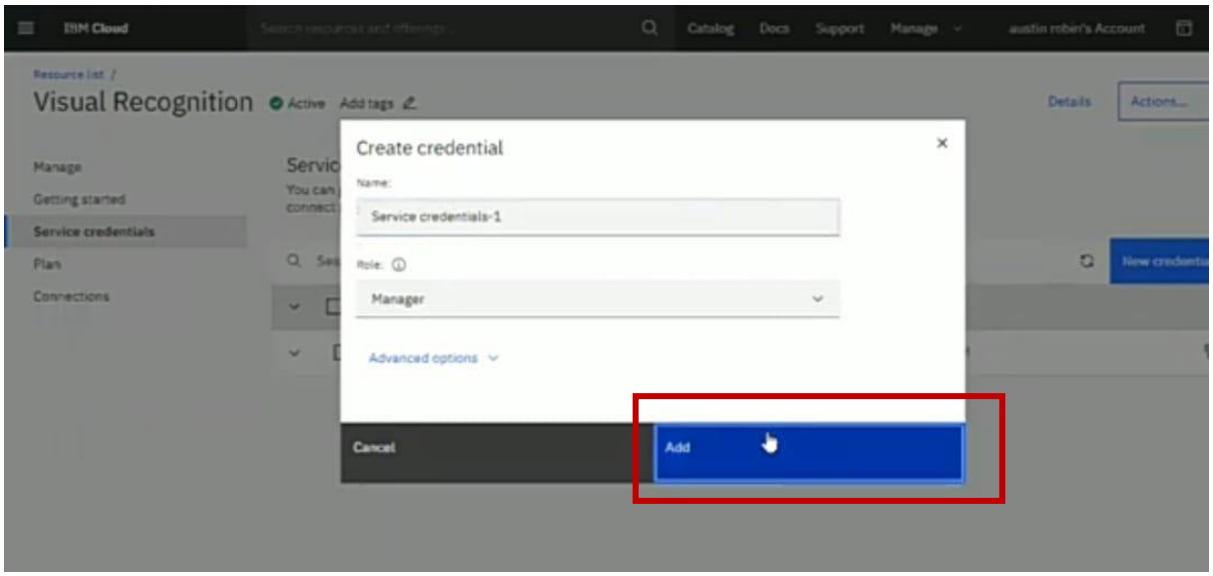
STEP 6:

Then go to service credentials and click on new credentials



STEP 7:

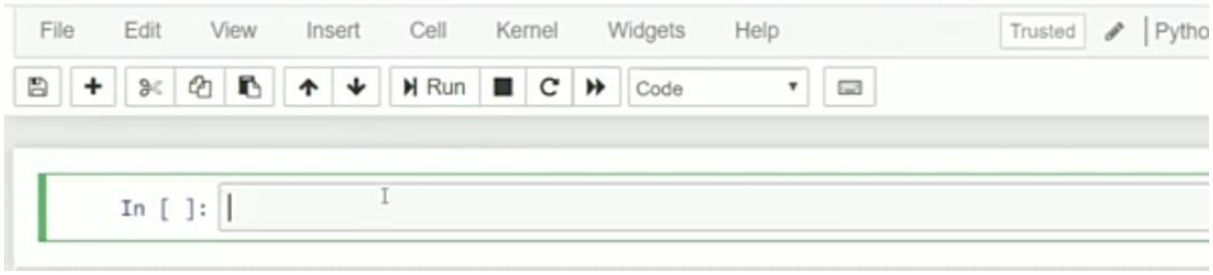
Click on add

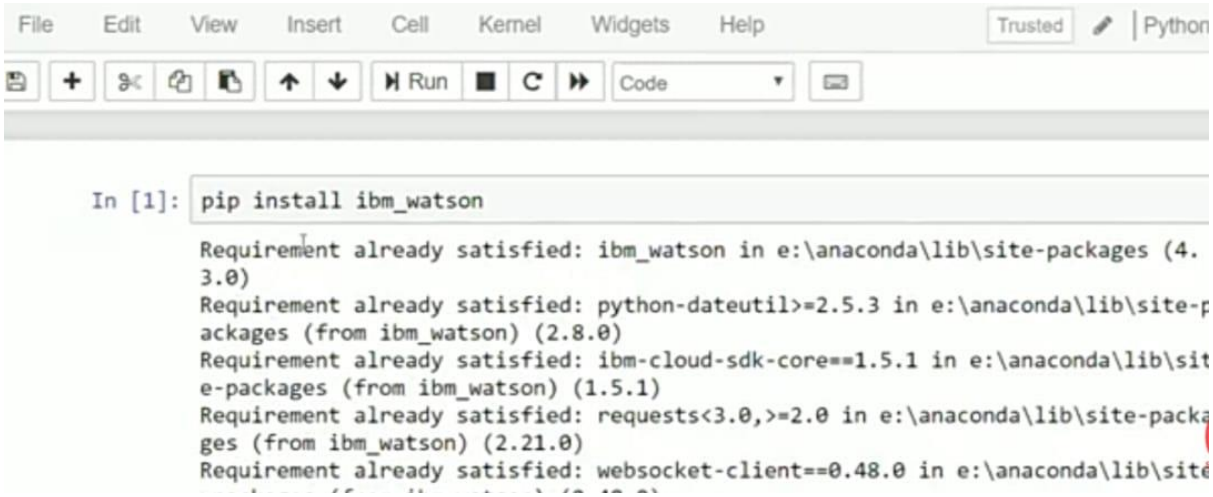


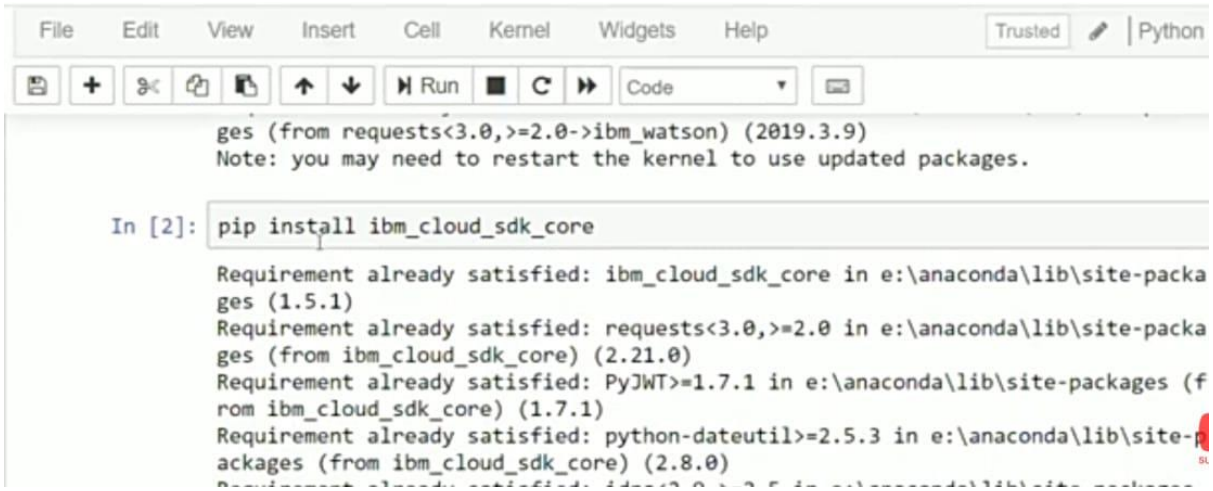
STEP 8:

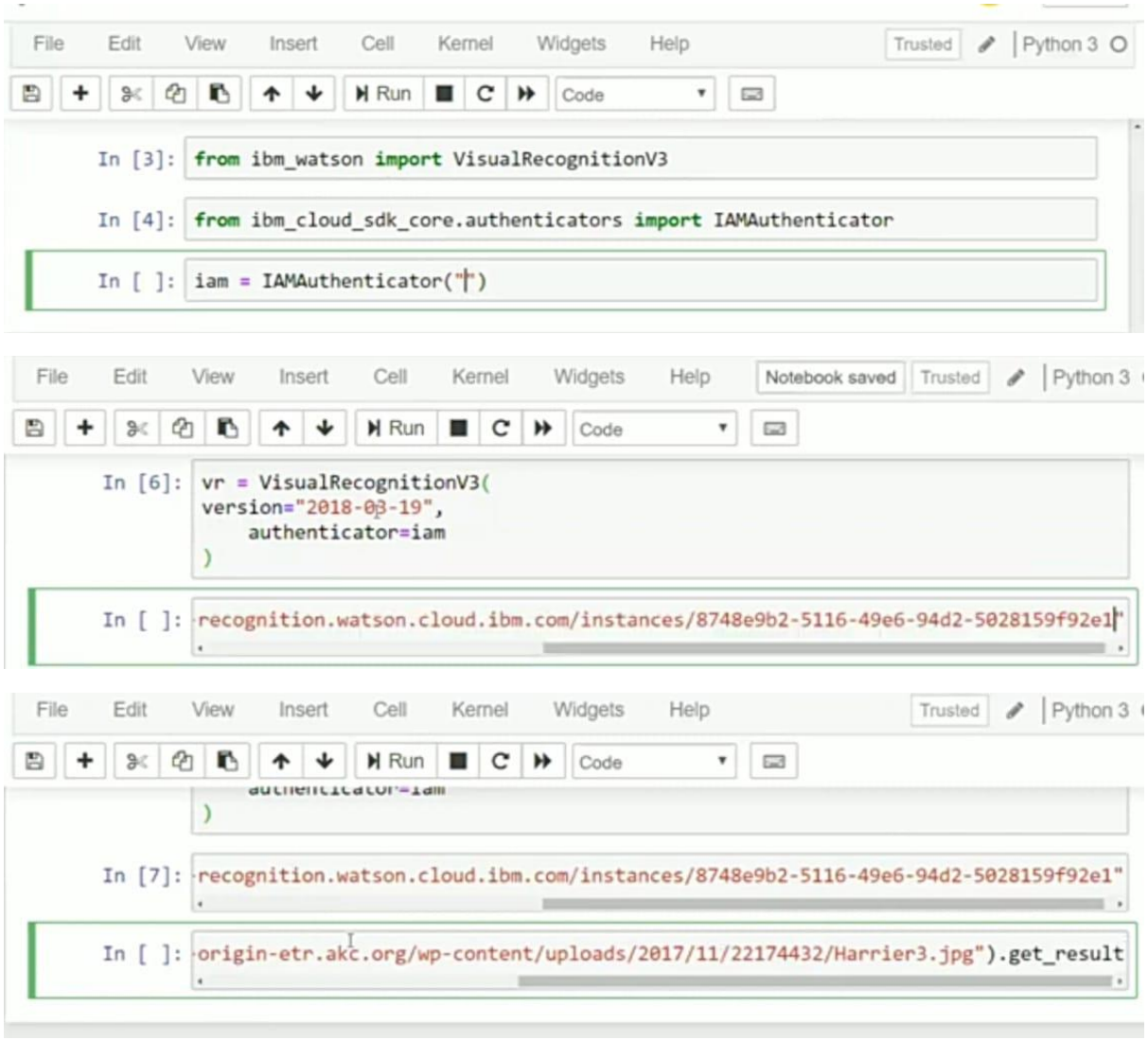
Create a python program on IDE

For an example


File Edit View Insert Cell Kernel Widgets Help
Trusted
Run
Code
In [ ]:


File Edit View Insert Cell Kernel Widgets Help
Trusted
Run
Code
In [1]: pip install ibm_watson
Requirement already satisfied: ibm_watson in e:\anaconda\lib\site-packages (4.
3.0)
Requirement already satisfied: python-dateutil>=2.5.3 in e:\anaconda\lib\site-p
ackages (from ibm_watson) (2.8.0)
Requirement already satisfied: ibm-cloud-sdk-core==1.5.1 in e:\anaconda\lib\sit
e-packages (from ibm_watson) (1.5.1)
Requirement already satisfied: requests<3.0,>=2.0 in e:\anaconda\lib\site-packa
ges (from ibm_watson) (2.21.0)
Requirement already satisfied: websocket-client==0.48.0 in e:\anaconda\lib\site


File Edit View Insert Cell Kernel Widgets Help
Trusted
Run
Code
ges (from requests<3.0,>=2.0->ibm_watson) (2019.3.9)
Note: you may need to restart the kernel to use updated packages.
In [2]: pip install ibm_cloud_sdk_core
Requirement already satisfied: ibm_cloud_sdk_core in e:\anaconda\lib\site-packa
ges (1.5.1)
Requirement already satisfied: requests<3.0,>=2.0 in e:\anaconda\lib\site-packa
ges (from ibm_cloud_sdk_core) (2.21.0)
Requirement already satisfied: PyJWT>=1.7.1 in e:\anaconda\lib\site-packages (f
rom ibm_cloud_sdk_core) (1.7.1)
Requirement already satisfied: python-dateutil>=2.5.3 in e:\anaconda\lib\site-p
ackages (from ibm_cloud_sdk_core) (2.8.0)



STEP 9:

Hence the uploading process of the image visual recognition in cloud has been demonstrated successfully.

EXAMPLE PROGRAM:

```
from keras.preprocessing.image import load_img, img_to_array

import numpy as np

import cv2 as cv

from keras.models import load_model
```

```
model = load_model('DOG.h5')
dog = ['Afghan', 'African Wild Dog', 'Airedale', 'American Hairless',
       'American Spaniel', 'Basenji', 'Basset', 'Beagle',
       'Bearded Collie', 'Bermaise', 'Bichon Frise', 'Blenheim',
       'Bloodhound', 'Bluetick', 'Border Collie', 'Borzoi',
       'Boston Terrier', 'Boxer', 'Bull Mastiff', 'Bull Terrier',
       'Bulldog', 'Cairn', 'Chihuahua', 'Chinese Crested', 'Chow',
       'Clumber', 'Cockapoo', 'Cocker', 'Collie', 'Corgi', 'Coyote',
       'Dalmation', 'Dhole', 'Dingo', 'Doberman', 'Elk Hound',
       'French Bulldog', 'German Sheperd', 'Golden Retriever',
       'Great Dane', 'Great Perenees', 'Greyhound', 'Groenendael',
       'Irish Spaniel', 'Irish Wolfhound', 'Japanese Spaniel', 'Komondor',
       'Labradoodle', 'Labrador', 'Lhasa', 'Malinois', 'Maltese',
       'Mex Hairless', 'Newfoundland', 'Pekinese', 'Pit Bull',
       'Pomeranian', 'Poodle', 'Pug', 'Rhodesian', 'Rottweiler',
       'Saint Bernard', 'Schnauzer', 'Scotch Terrier', 'Shar_Pei',
       'Shiba Inu', 'Shih-Tzu', 'Siberian Husky', 'Vizsla', 'Yorkie']
def predictor(img):
    dims = (224,224)
    imag = load_img(img,target_size=dims)
    arr = img_to_array(imag)
    arr = arr/255.0
    arr = np.expand_dims(arr,0)
    res = model.predict(arr)
    print(res.shape)
     idx = res.argmax()
    image = cv.imread(img)
```

```
    window_name = dog[idx].replace(" ", "_")
    cv.imshow(window_name, image)
    cv.waitKey()
img = "D:/nivi project/pero.jpeg"
predictor(img)
```

OUTPUT:

CONCLUSION:

In conclusion,IBM Cloud Image Visual Recconition is a powerful and versatile tool for analyzing and categorizing visual content.It leverages deep learning and artificial intelligence to provide accurate image recognition and classification.Its

Robust setbof features,including custom model training,intrgration capabilities,and a user-friendly interface,make it a valuable asset for a wide range of applications from content moderation to visual search. However,the effectiveness of this services may depend on the quality and quantity of training data and the complexity of the visual recognition tasks.overall ,IBM cloud image visual recognition is a reliable solution for business and developer looking to harness the potential of computer vision n their projects.

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