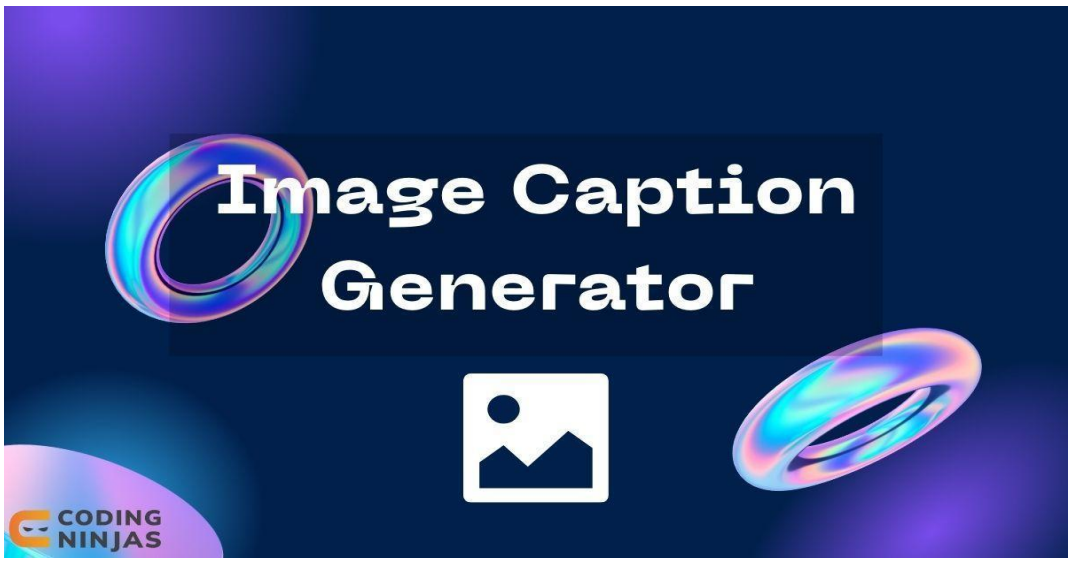
Image Recognition with IBM Cloud Visual Recognition

PHASE_4

Implement the image classification process using the IBM Cloud Visual Recognition API.
Use natural language generation to create captions for the recognized images.



IBM

1. Set Up IBM Cloud Visual Recognition:

- Create an IBM Cloud account if you don't have one.
- Create a Visual Recognition service instance in the IBM Cloud.
- Get your API key and credentials for this service.

2. Integrate IBM Visual Recognition :

- Use the IBM Watson SDK or API to connect your application with the Visual Recognition service.
- Send images to the service for classification.

3. Image Classification:

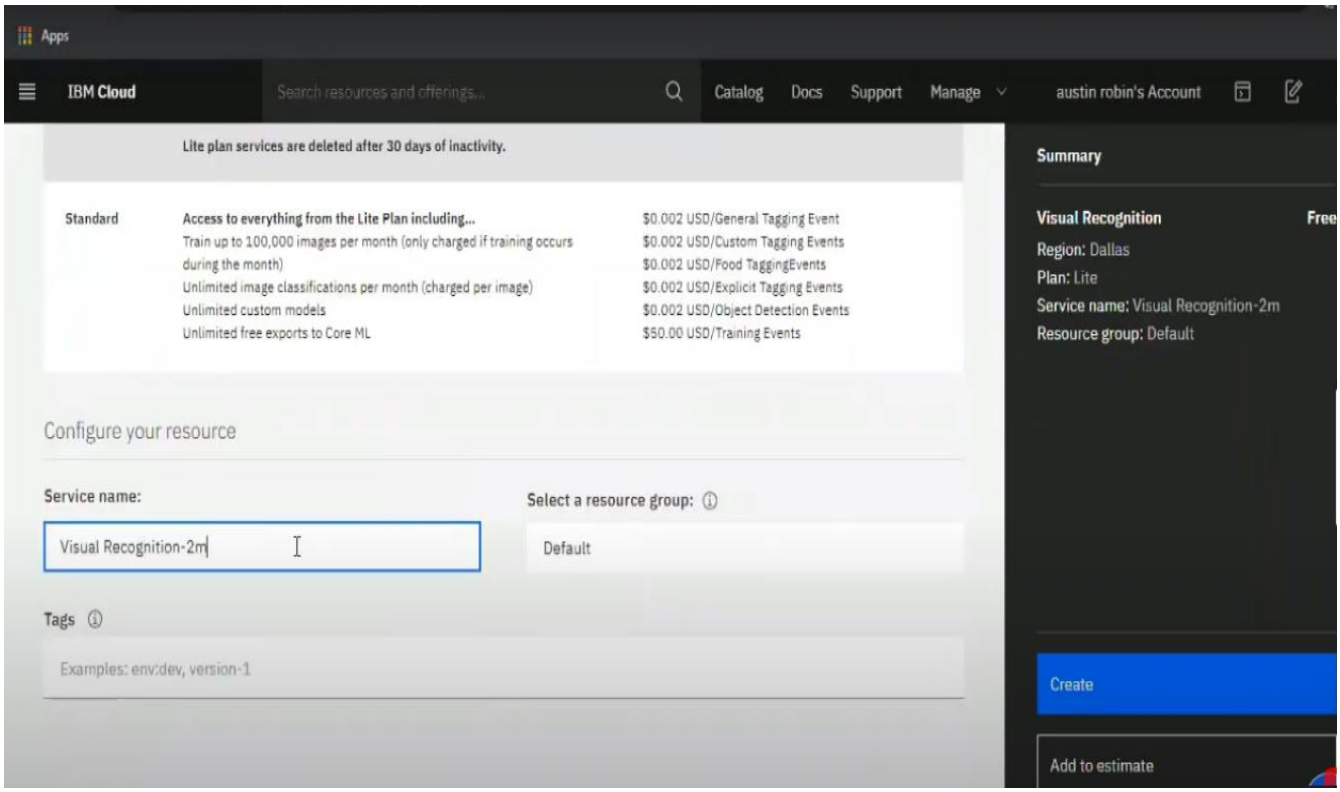
- When a user uploads an image, send it to the IBM Visual Recognition service.
- Process the response to obtain classification results, which might include labels or tags describing the content of the image.

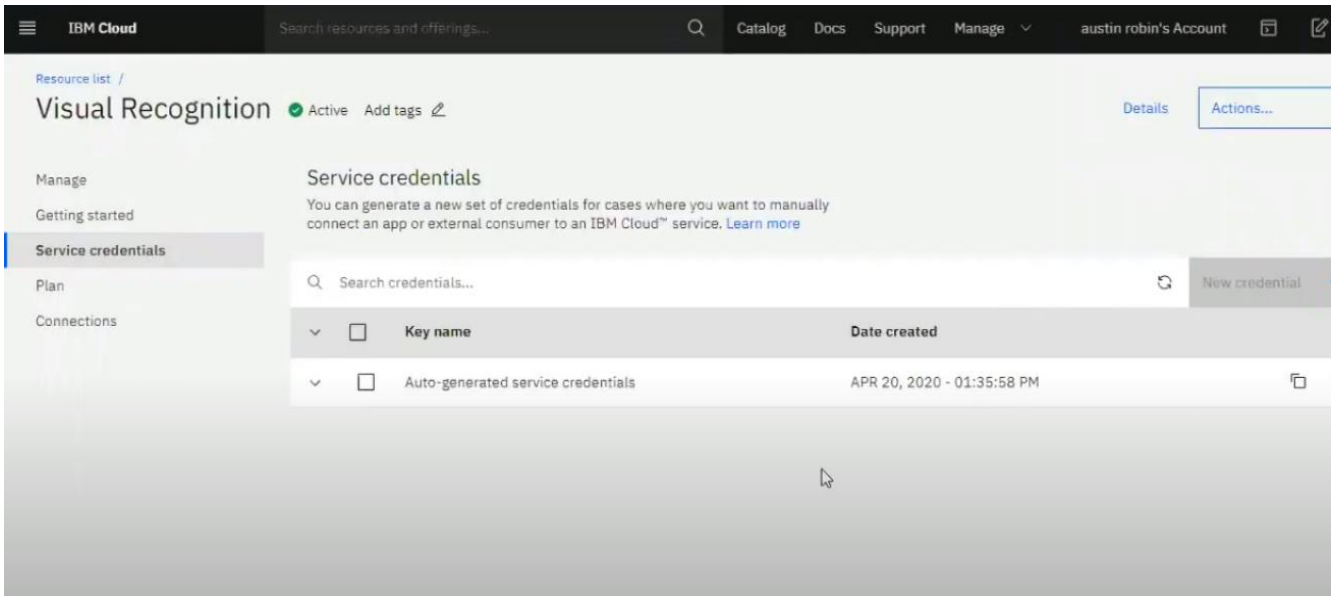
4. Natural Language Generation:

- Once you have the image classification results, use a natural language generation (NLG) system to create captions for the recognized images. OpenAI's GPT-3 or GPT-4 can be used for this purpose.

Python code:

```
# Import necessary libraries
import ibm_watson
from ibm_cloud_sdk_core.authenticators import IAMAuthenticator
import openai

# Set up IBM Visual Recognition
visual_recognition_authenticator = IAMAuthenticator('ab12cd34ef56gh78ij90kl12mn34op56qr78st90uv12wx34yz56')
visual_recognition = ibm_watson.VisualRecognitionV4(
    version='2018-03-19',
    authenticator=visual_recognition_authenticator
)
visual_recognition.set_service_url('https://api.us-south.visual-recognition.watson.cloud.ibm.com')

# Set up OpenAI GPT-3
openai.api_key = 'ab12cd34ef56gh78ij90kl12mn34op56qr78st90uv12wx34yz56'

# Define a function to process images
def process_image(image_path):
    # Upload the image to IBM Visual Recognition
    with open(image_path, 'rb') as image_file:
        image_results = visual_recognition.classify(images_file=image_file).get_result()

    # Extract relevant labels/tags from image classification results
    labels = [label['class'] for label in image_results['images'][0]['classifiers'][0]['classes']]

    # Generate a caption using OpenAI GPT-3
    caption = generate_caption(labels)

    return caption

# Define a function to generate captions using GPT-3
def generate_caption(labels):
    prompt = f"Create a caption for an image with labels: {', '.join(labels)}"

    response = openai.Completion.create(
        engine="text-davinci-002",  # You can choose an appropriate GPT-3 engine
        prompt=prompt,
        max_tokens=50  # Adjust the token limit as needed
    )

    caption = response.choices[0].text.strip()

    return caption

# Example usage
image_path = 'path/to/your/image.jpg'
caption = process_image(image_path)
print(f"Generated Caption: {caption}")
```

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Key name
Date created
Auto-generated service credentials
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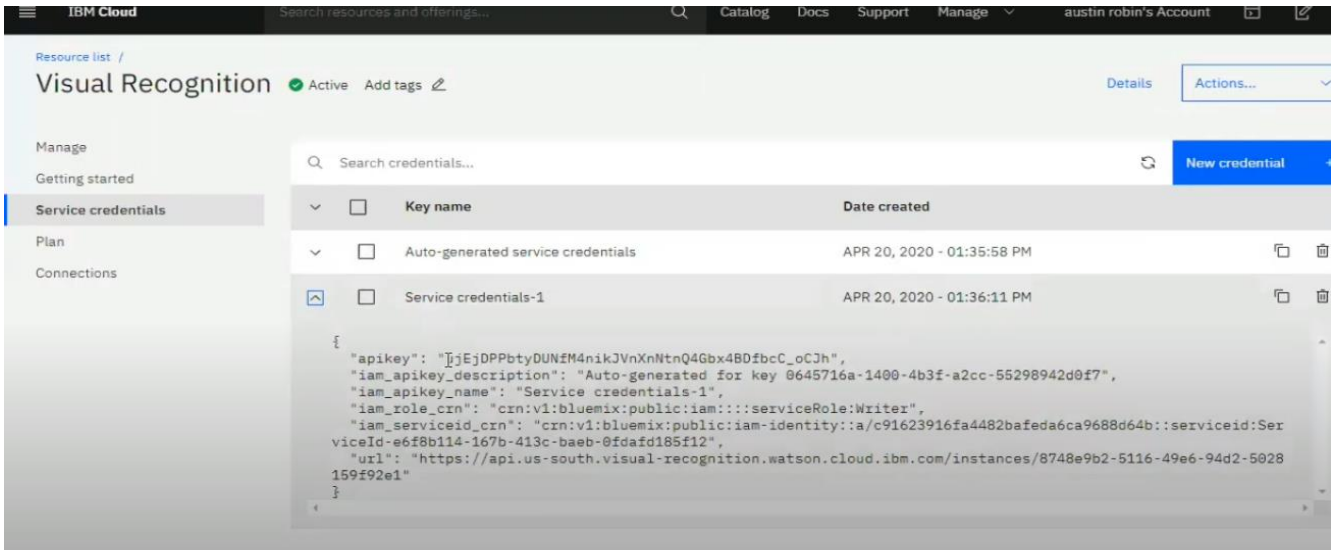
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New credential
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Date created
Auto-generated service credentials
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Service credentials-1
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"iam_apikey_description": "Auto-generated for key 0645716a-1400-4b3f-a2cc-55298942d0f7",
"iam_apikey_name": "Service credentials-1",
"iam_role_crn": "crn:v1:bluemix:public:iam::::serviceRole:Writer",
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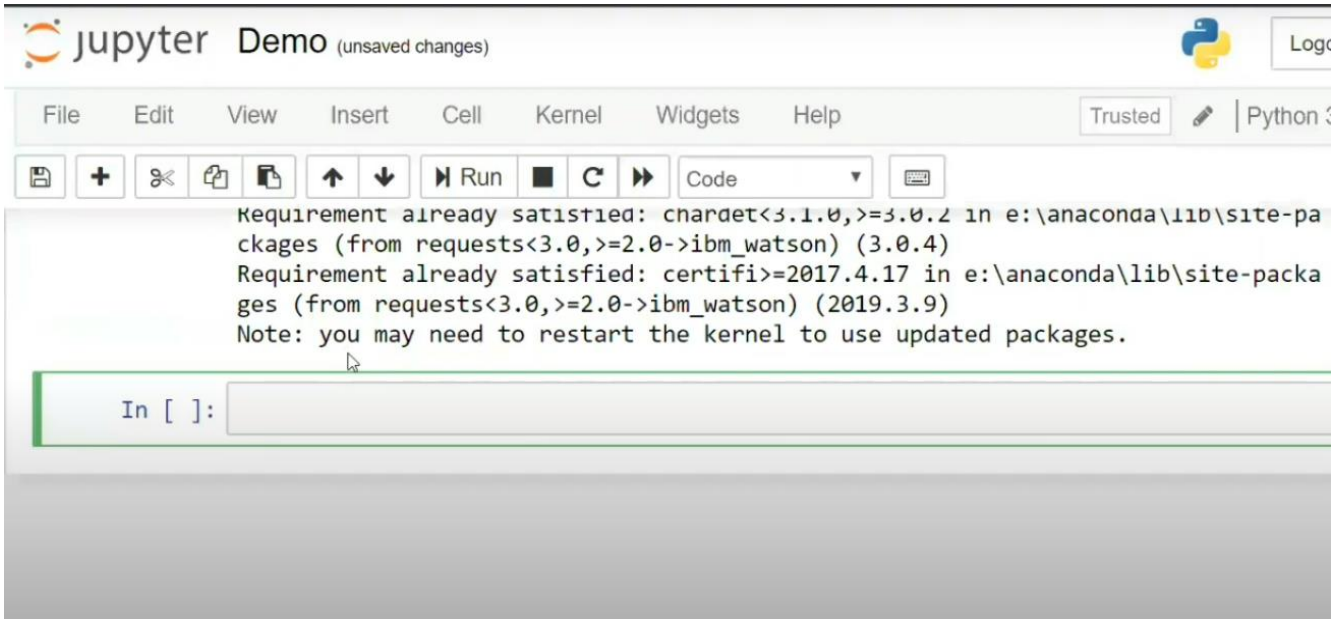
}


jupyter Demo (unsaved changes)
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Run
Code
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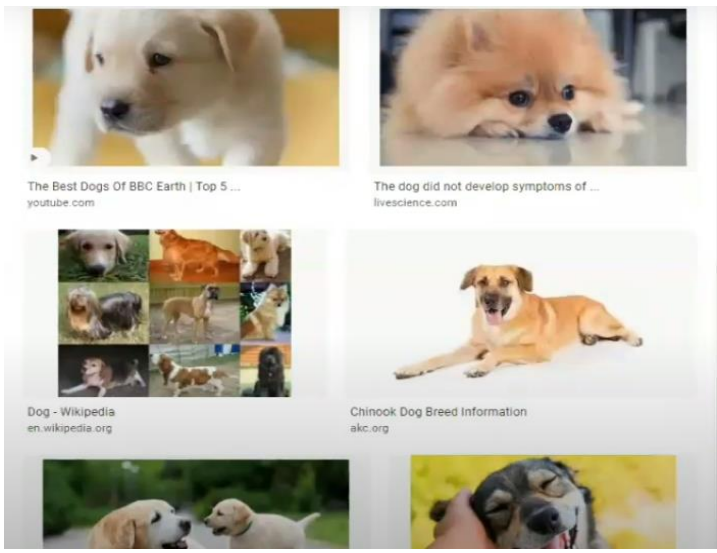
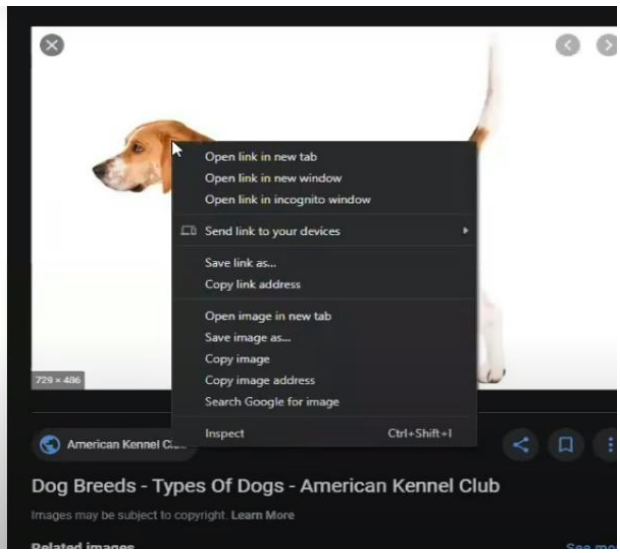
Requirement already satisfied: certifi>=2017.4.17 in e:\anaconda\lib\site-packa
ges (from requests<3.0,>=2.0->ibm_watson) (2019.3.9)
Note: you may need to restart the kernel to use updated packages.
In [ ]:


The Best Dogs Of BBC Earth | Top 5 ...
youtube.com
The dog did not develop symptoms of ...
livescience.com
Dog - Wikipedia
en.wikipedia.org
Chinook Dog Breed Information
akc.org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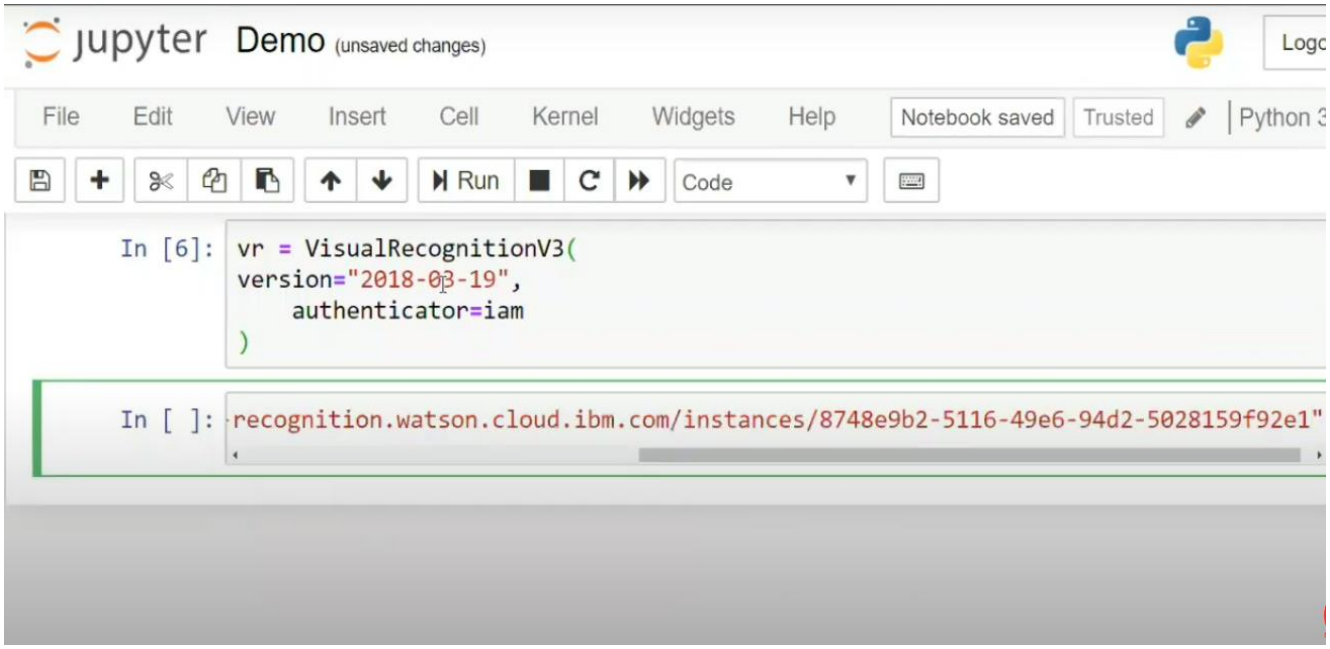
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Notebook saved
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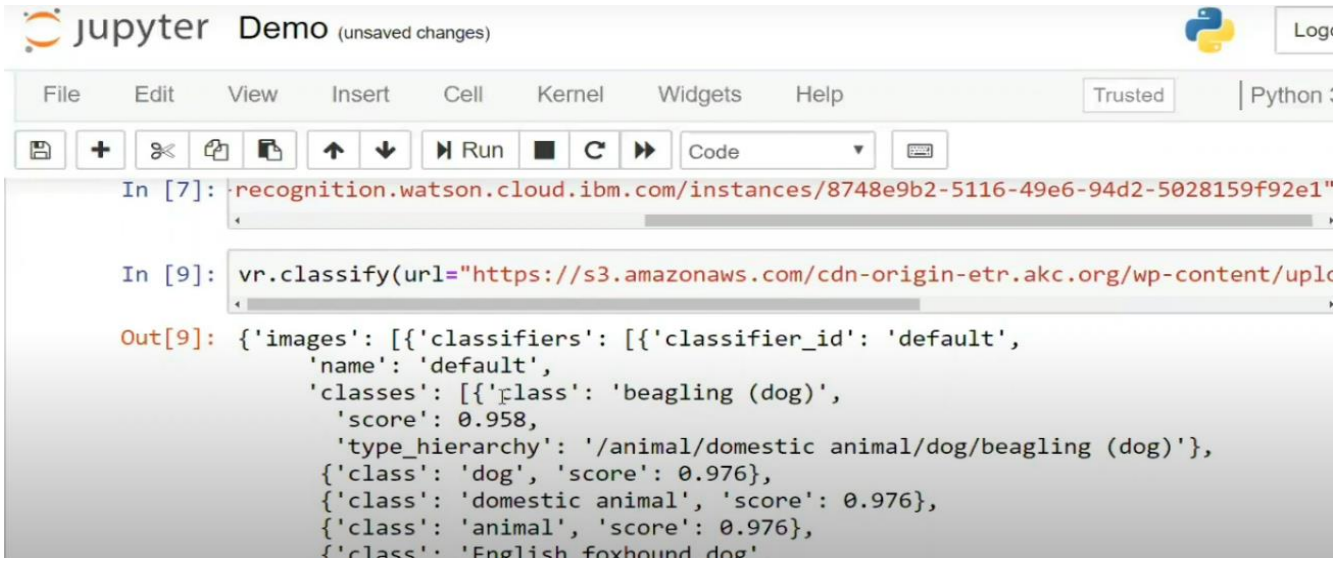
Python 3
Run
Code
In [6]:
vr = VisualRecognitionV3(
version="2018-03-19",
authenticator=iam
)
In [ ]:
recognition.watson.cloud.ibm.com/instances/8748e9b2-5116-49e6-94d2-5028159f92e1"


jupyter Demo (unsaved changes)
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Python 3
Run
Code
In [7]:
recognition.watson.cloud.ibm.com/instances/8748e9b2-5116-49e6-94d2-5028159f92e1"
In [9]:
vr.classify(url="https://s3.amazonaws.com/cdn-origin-etr.akc.org/wp-content/uplo
Out[9]:
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