import tensorflow\_datasets as tfds  
import tensorflow as tf  
import numpy as np  
from PIL import Image  
from ipywidgets import widgets  
import io  
from IPython.display import display, display\_html, HTML

idx2label = {  
 0: "tench",   
 1: "English springer",   
 2: "cassette player",   
 3: "chain saw",   
 4: "church",   
 5: "French horn",   
 6: "garbage truck",  
 7: "gas pump",   
 8: "golf ball",   
 9: "parachute"  
}

def classify(image, model):  
 image = tf.convert\_to\_tensor(np.array(image)).numpy()  
 image = tf.image.resize(image, (160, 160))  
 batch = tf.expand\_dims(image, 0)  
 res = model(batch)  
 conf\_idx = tf.argmax(tf.sigmoid(res[0]))  
 print(  
 f"It's a: {idx2label[tf.argmax(res[0]).numpy()]} with a confidence of {tf.sigmoid(res[0])[conf\_idx] \* 100:.3f}%"  
 )  
 print("\*\*Refresh page to classifiy more images!\*\*")

model = tf.keras.models.load\_model("best.hdf5")

def on\_button\_clicked(out):  
 with out:  
 with tf.device('/CPU:0'):  
 data = upload.data  
 image = Image.open(io.BytesIO(data[-1]))  
 classify(image, model)

upload = widgets.FileUpload()  
box\_layout = widgets.Layout(display='flex',  
 flex\_flow='row',  
 align\_items='center',  
 width='auto')  
lay = widgets.Layout(display='flex',  
 flex\_flow='column',  
 align\_items='center',  
 width='auto')  
  
button = widgets.Button(description='Classify!')  
out = widgets.Output(layout={'border': '1px solid black'})  
  
  
def on\_button\_clicked(\_):  
 with out:  
 with tf.device('/CPU:0'):  
 data = upload.data  
 image = Image.open(io.BytesIO(data[-1]))  
 display(image)  
 classify(image, model)  
 upload.close()  
 button.close()  
  
  
button.on\_click(on\_button\_clicked)  
box = widgets.HBox(children=[upload, button, out], layout=lay)  
box

{"model\_id":"361f843369684f2da57c1c674ec02efb","version\_major":2,"version\_minor":0}