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# FaceRecognition

## Using face_recognition python package

Working: Looks through the no of faces in a directory and encodes them for future detections. Returns the face detected from given image file and Labels them according to prior encoded faces.

### Requirements:

```
import face_recognition as fr

import os

import cv2

import face_recognition

import numpy as np

from time import sleep
```

## Functions with Description and Source code

### get_encoded_faces() looks through the faces folder and encodes all the faces and returns  dict of (name, image encoded)

```
def get_encoded_faces():

    encoded = {}

    for dirpath, dnames, fnames in os.walk("./faces"):

        for f in fnames:

            if f.endswith(".jpg") or f.endswith(".png"):

                face = fr.load_image_file("faces/" + f)

                encoding = fr.face_encodings(face)[0]

                encoded[f.split(".")[0]] = encoding

    return encoded
```

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## unknown_image_encoded(img) encode a face given the file name

```
def unknown_image_encoded(img):

    face = fr.load_image_file("faces/" + img)

    encoding = fr.face_encodings(face)[0]

    return encoding
```

## classify_face(im) will find all of the faces in a given image and label them if it knows what they are.

param im: str of file path

return: list of face names

```
def classify_face(im):

    faces = get_encoded_faces()

    faces_encoded = list(faces.values())

    known_face_names = list(faces.keys())

    img = cv2.imread(im, 1)

    face_locations = face_recognition.face_locations(img)

    unknown_face_encodings = face_recognition.face_encodings(img, face_locations)

    face_names = []

    for face_encoding in unknown_face_encodings:

        # See if the face is a match for the known face(s)

        matches = face_recognition.compare_faces(faces_encoded, face_encoding)

        name = "Unknown"

        # use the known face with the smallest distance to the new face

        face_distances = face_recognition.face_distance(faces_encoded, face_encoding)

        best_match_index = np.argmin(face_distances)

        if matches[best_match_index]:

            name = known_face_names[best_match_index]

        face_names.append(name)
```

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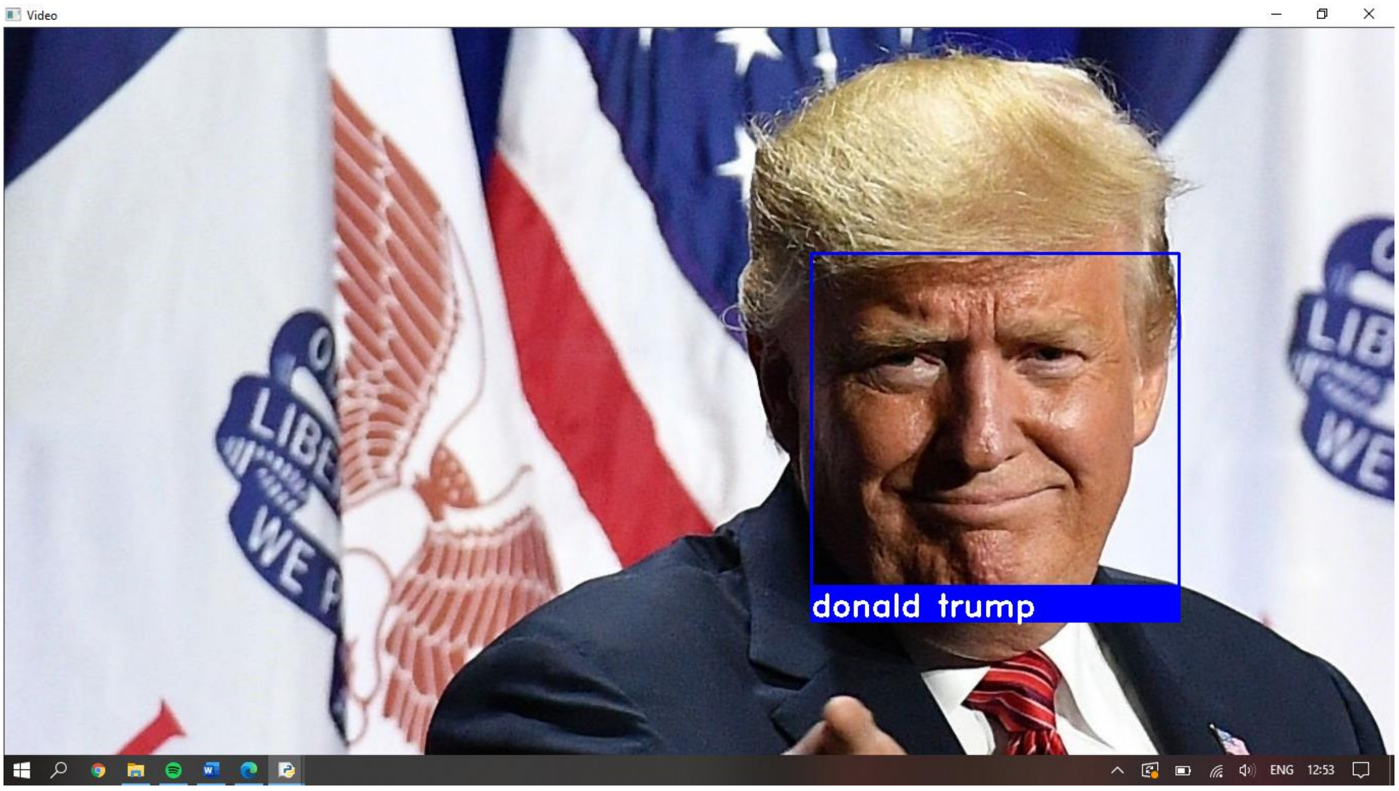
```
    for (top, right, bottom, left), name in zip(face_locations, face_names):
      # Draw a box around the face
      cv2.rectangle(img, (left-20, top-20), (right+20, bottom+20), (255, 0, 0), 2)
      # Draw a label with a name below the face
      cv2.rectangle(img, (left-20, bottom -15), (right+20, bottom+20), (255, 0, 0), cv2.FILLED)
      font = cv2.FONT_HERSHEY_DUPLEX
      cv2.putText(img, name, (left -20, bottom + 15), font, 1.0, (255, 255, 255), 2)
  # Display the resulting image
  while True:
    cv2.imshow('Video', img)
    if cv2.waitKey(1) & 0xFF == ord('q'):
      return face_names
print(classify_face("test.jpg"))
```

## output:


Video
donald trump
ENG
12:53