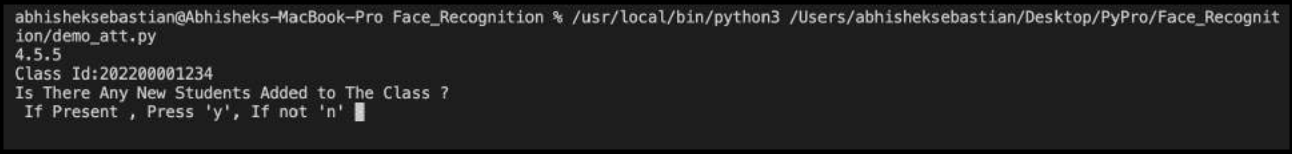
Facial Recognition Integrated Attendance System (FRIAS)

Attendance Through Facial Recogniton Using Python, Face Recognition Library, Open CV Library OS Library,Pickle, Date and Time Library.

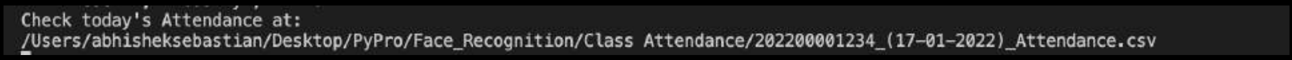
Algorithm:

1) Prints Class ID to verify If It's the Correct Class
2) Ask's if There is any new Student Added to The Already available Class Database



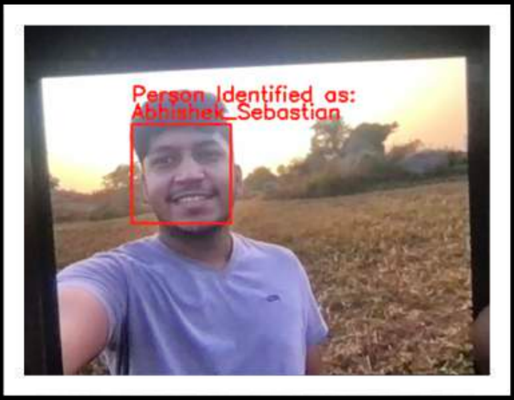
```
abhisheksebastian@Abhisheks-MacBook-Pro Face_Recognition % /usr/local/bin/python3 /Users/abhisheksebastian/Desktop/PyPro/Face_Recognit
ion/demo_att.py
4.5.5
Class Id:202200001234
Is There Any New Students Added to The Class ?
 If Present , Press 'y', If not 'n' ▋
```

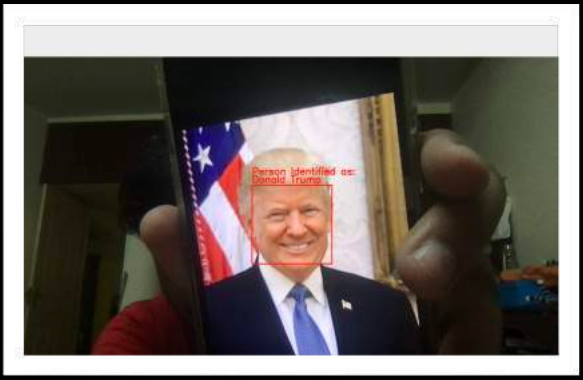
2a) If present will LOCATE,ENCODE all the Pictures Present in the Folder, and writes a Pickle file.
2b) If Not Present Skips The learning process, and starts reading the already prepapred Pickle file.
3) Creates and Writes a CSV File with "Class ID +Date + Attendance .CSV" in The Specified Folder.

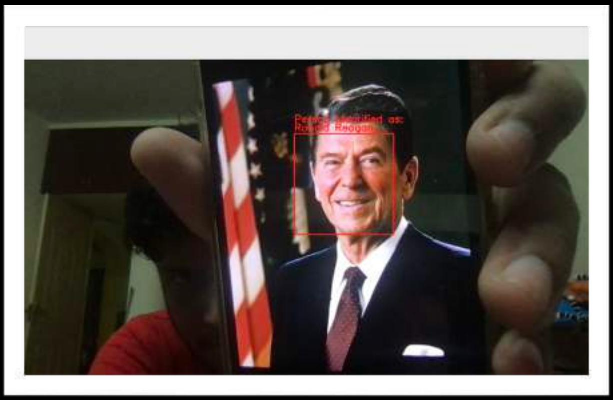


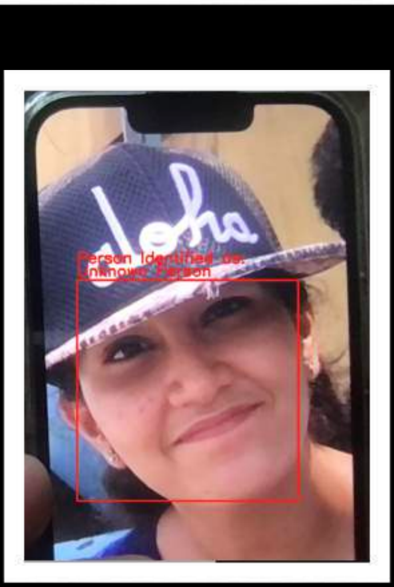
```
 Check today's Attendance at:
 /Users/abhisheksebastian/Desktop/PyPro/Face_Recognition/Class Attendance/202200001234_(17-01-2022)_Attendance.csv
```

4) Starts The Webcam, Locates and Encodes Each and Every face Found in the frame,
5) Starts Matching Frame by Frame with the Pickle File, Which has data about the Students already present in The Class.
6) If the Name Of the person Matches with the, one Present in the class provides them with the name.
7) if Not the Name is "Unknown Person"

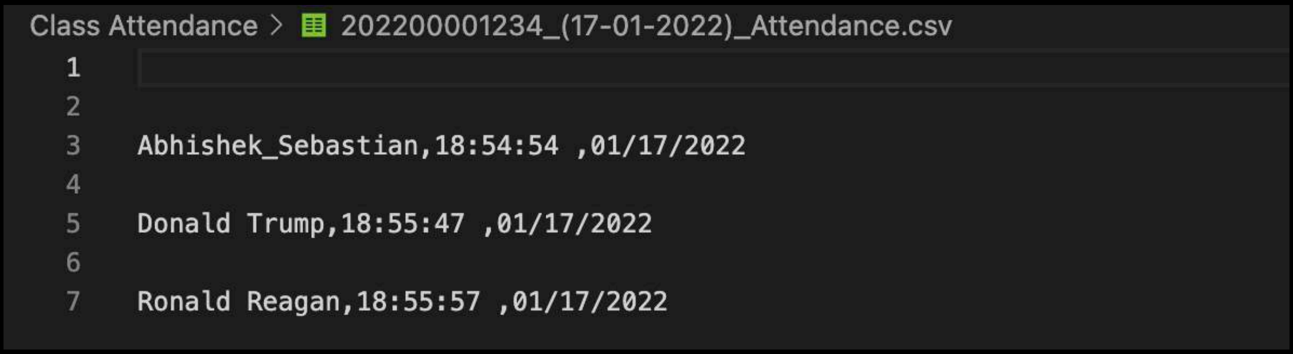








*8) The CSV File which was created earlier is used to Write the Name of the Person,
The Time and Date. Without Duplicate Entries.Unknown Person’s attendance wont be Registered*



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Abhishek_Sebastian,18:54:54 ,01/17/2022

Donald Trump,18:55:47 ,01/17/2022

Ronald Reagan,18:55:57 ,01/17/2022
```

Code:

```
import face_recognition
import cv2
import os
from datetime import datetime

import pickle

from attendance import markAttendance
print(cv2.__version__)

Encodings=[]
#learnings of the Known Faces
Names=[]
#Names of The Known Faces

# Checking if there is a new student(s) present
while True:
    print("Class Id:202200001234")
    print("Is There Any New Students Added to The Class ?")
    UserInput=input(" If Present , Press 'y', If not 'n' ")
    
    if UserInput=="y":
        image_dir='/Users/abhisheksebastian/Downloads/demoImages-
master/Abhishek_Sebastian'
        # the Folder which has all the Images
        # to Walk through all the files of the Folder(Known)
        for root,dirs,files in os.walk(image_dir):
            print(files)
            for file in files:
                path=os.path.join(root,file) # Joining the root 
found in the Image directory with The file name\
                #print(path)
                #Getting The name of the person from then file
                name =os.path.splitext(file)[0]
                print(name)
                person=face_recognition.load_image_file(path) #
loading the person's Pic to the variable "person"
                encoding=face_recognition.face_encodings(person)
[0] # Learning the "Person"'s Face into Variable "encoding"
                Encodings.append(encoding) #appending the learning
of the person to the entire list


    elif UserInput=='n':
        break

# User Defined Function For Marking Attendance
def markAttendance(name) :


    with open(Attendance_file_path,'a+') as f:
            myDataList =f.readlines()
            f.writelines(f'\n')
            nameList=[]

            for line in myDataList:
                entry =line.split(",")
                nameList.append(entry[0])
                print(name)


            if name not in nameList:
                now=datetime.now()
                dtString=now.strftime('%H:%M:%S ,%m/%d/%Y')
                f.writelines(f'\n')
                f.writelines(f'{name},{dtString}')





with open('train.pkl','rb') as f:
        Names=pickle.load(f)
        Encodings=pickle.load(f)
names=set()
time_stamp=set()
# Path For The CSV File to be Saved
save_path = '/Users/abhisheksebastian/Desktop/PyPro/
Face_Recognition/Class Attendance'
classid="202200001234" # your Class Id Comes Here
now=datetime.now()
dtString=now.strftime('(%d-%m-%Y)')
#concatanating the Class ID, dt String , .csv File Extension
file_name= classid +"_" + dtString +"_" +"Attendance"+"." +"csv"
    
#joining The File Path to that of File name so that it can be
saved There.
completeFileName = os.path.join(save_path, file_name)

Attendance_file_path= completeFileName

print("Check today's Attendance at:")
print(completeFileName)
file1 = open(completeFileName, "x")
 
# Live Camera Attendance Mode
cam =cv2.VideoCapture(0)
while True:
    _,frame=cam.read()
    frameSmall=cv2.resize(frame,(0,0),fx=0.33,fy=0.33)

    frameRGB=cv2.cvtColor(frameSmall,cv2.COLOR_BGR2RGB)
    #locating the Person's Face in the Live camera Feed Frame
    facePositions=face_recognition.face_locations(frameRGB)
     #Encoding the Person's Face in the Live camera Feed Frame

allEncodings=face_recognition.face_encodings(frameRGB,facePosition
s)
    
    # for all the faces present in that frame, it is checking for
some match
    for(top,right,bottom,left),face_encoding in zip
(facePositions,allEncodings):
```

```
         name="Unknown Person"

matches=face_recognition.compare_faces(Encodings,face_encoding)
        
        if True in matches:
            first_match_index = matches.index(True)
            name=Names[first_match_index]
        top=top*3
        bottom=bottom*3
        right=right*3
        left=left*3
        font=cv2.FONT_HERSHEY_SIMPLEX
        # drawing a rectangle over the Face
        cv2.rectangle(frame,(left,top),(right,bottom),(0,0,255),2)
        # Writing a Name over the Face
        cv2.putText(frame,name,(left,top-6),font,.75,(0,0,255),2)
        now=datetime.now()
        
        time_stamp_student=now.strftime("%H:%M:%S")
        # to avoid Duplicates If The Name is already marked 
attendance it doesnt mark it twice.
        while name not in names:
            names.add(name)
            if name != "Unknown Person":
                    markAttendance(name)
            
        #time_stamp.add(time_stamp_student)
        cv2.putText(frame,"Person Identified as:",
(left,top-25),font,.75,(0,0,255),2)
        current_name=name
     # to Show The Frame Output
    cv2.imshow('Picture',frame)
    cv2.moveWindow('Picture',0,0)
    # to Quit The Frame Output
    if cv2.waitKey(1)==ord('q'):
        break
cam.release()
cv2.destroyAllWindows()
```