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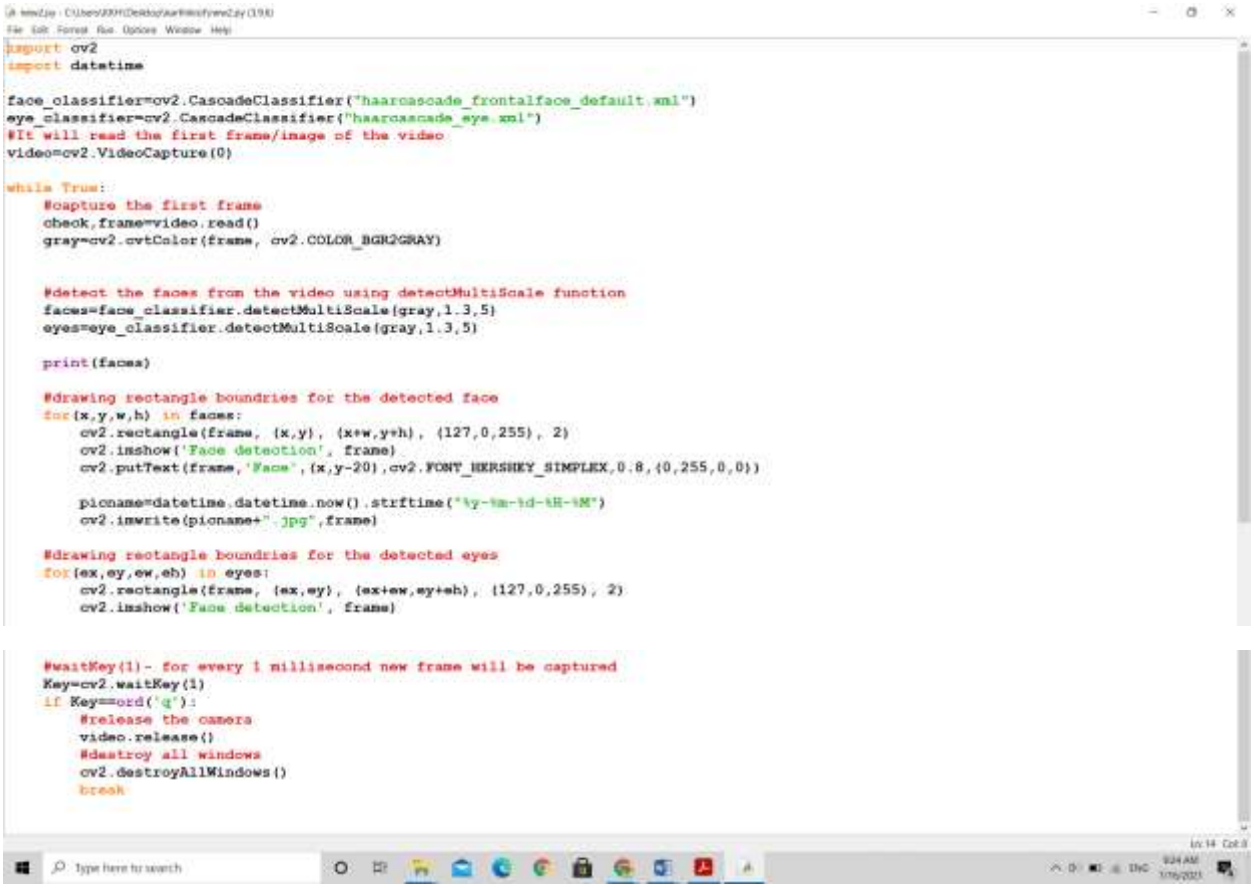
19BEE1216

Assignment 6

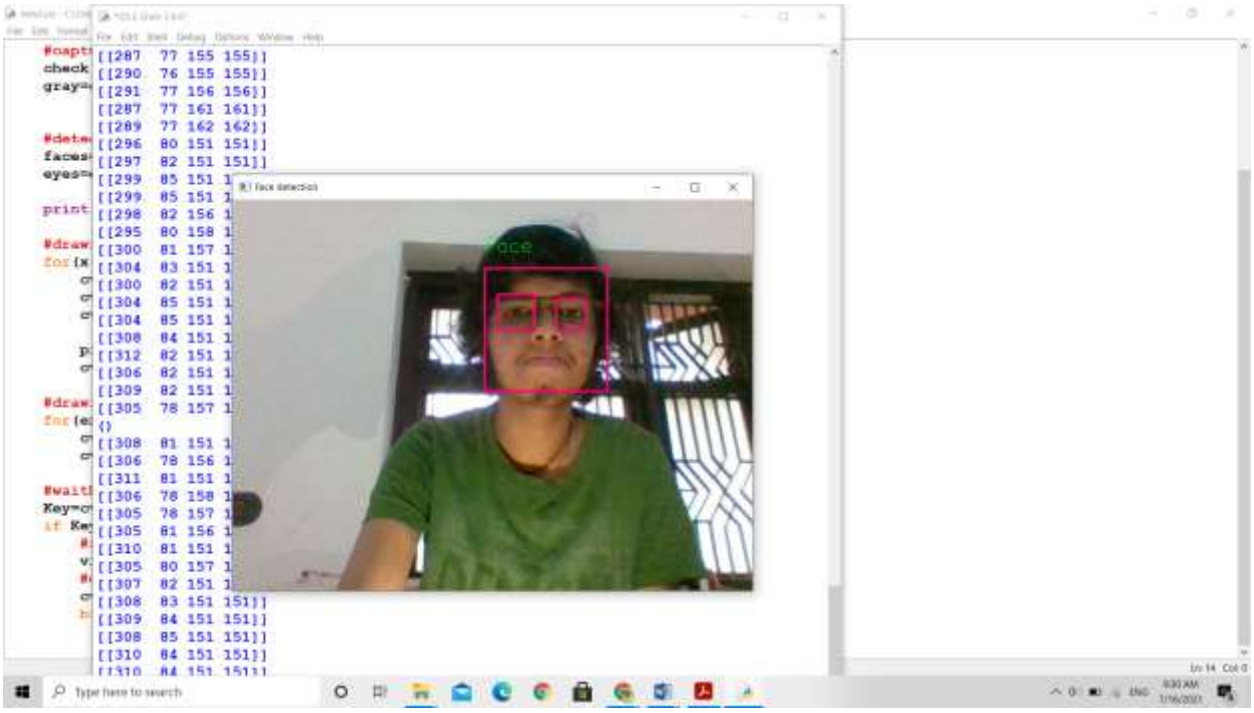
Develop a python code to detect any object using Haar cascade classifier.



```
import cv2
import datetime

face_classifier=cv2.CascadeClassifier("haarcascade_frontalface_default.xml")
eye_classifier=cv2.CascadeClassifier("haarcascade_eye.xml")
#It will read the first frame/image of the video
video=cv2.VideoCapture(0)

while True:
    #capture the first frame
    check,frame=video.read()
    gray=cv2.cvtColor(frame, cv2.COLOR_BGR2GRAY)


    #detect the faces from the video using detectMultiScale function
    faces=face_classifier.detectMultiScale(gray,1.3,5)
    eyes=eye_classifier.detectMultiScale(gray,1.3,5)

    print(faces)

    #drawing rectangle boundries for the detected face
    for(x,y,w,h) in faces:
        cv2.rectangle(frame, (x,y), (x+w,y+h), (127,0,255), 2)
        cv2.imshow('Face detection', frame)
        cv2.putText(frame,'Face',(x,y-20),cv2.FONT_HERSHEY_SIMPLEX,0.8,(0,255,0,0))

        picname=datetime.datetime.now().strftime("%y-%m-%d-%H-%M")
        cv2.imwrite(picname+".jpg",frame)

    #drawing rectangle boundries for the detected eyes
    for(ex,ey,ew,eh) in eyes:
        cv2.rectangle(frame, (ex,ey), (ex+ew,ey+eh), (127,0,255), 2)
        cv2.imshow('Face detection', frame)
```

```
    #waitKey(1)- for every 1 millisecond new frame will be captured
    Key=cv2.waitKey(1)
    if Key==ord('q'):
        #release the camera
        video.release()
        #destroy all windows
        cv2.destroyAllWindows()
        break
```

Here face and eyes are detected:



Two wheeler detection:

bike.py - C:/Users/KKH/Desktop/karthikiot/bike.py (3.9.6)

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```
import cv2

cascade_src = 'bike.xml'

video_src = 'two_wheeler2.mp4'

cap = cv2.VideoCapture(video_src)

car_cascade = cv2.CascadeClassifier(cascade_src)


while True:
    ret, img = cap.read()

    if (type(img) == type(None)):
        break

    gray = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)

    cars = car_cascade.detectMultiScale(gray,1.01, 1)


    for (x,y,w,h) in cars:
        cv2.rectangle(img,(x,y),(x+w,y+h),(0,255,215),2)

    cv2.imshow('video', img)

    if cv2.waitKey(33) == 27:
        break

cv2.destroyAllWindows()
```

Car detection:

car.py - C:/Users/KKH/Desktop/karthikiot/car.py (3.9.6)

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```
import cv2

cascade_src = 'car.xml'

video_src = 'video1.avi'

cap = cv2.VideoCapture(video_src)

car_cascade = cv2.CascadeClassifier(cascade_src)


while True:
    ret, img = cap.read()

    if (type(img) == type(None)):
        break

    gray = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)

    cars = car_cascade.detectMultiScale(gray, 1.1, 2)


    for (x,y,w,h) in cars:
        cv2.rectangle(img,(x,y),(x+w,y+h),(0,255,255),2)

    cv2.imshow('video', img)

    if cv2.waitKey(33) == 27:
        break

cv2.destroyAllWindows()
```