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

Code:

```
import cv2
import datetime

face_classifier=cv2.CascadeClassifier("haarcascade_frontalface_default.xml")
eye_classifier=cv2.CascadeClassifier("haarcascade_eye.xml")
smile_classifier=cv2.CascadeClassifier("haarcascade_smile.xml")
#It will read the first frame/image of the video
video=cv2.VideoCapture('video smile.mp4')

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)
    smiles=smile_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),2)
        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('eye detection', frame)
        cv2.putText(frame,'eyes',(ex,ey-
20),cv2.FONT_HERSHEY_SIMPLEX,0.8,(0,255,0),2)

    #drawing rectangle boundries for the detected smile
    for (sx, sy, sw, sh) in smiles:
        cv2.rectangle(frame,(sx,sy),((sx+sw),(sy+sh)),(0,0,255),2)
        cv2.imshow('Smile detection', frame)
        cv2.putText(frame,'Smile',(sx,sy-
20),cv2.FONT_HERSHEY_SIMPLEX,0.8,(0,255,0),2)

    #waitKey(1)- for every 5 millisecond new frame will be captured
    Key=cv2.waitKey(5)
    if Key==ord('q'):
        #release the camera
        video.release()
        #destroy all windows
        cv2.destroyAllWindows()
        break
```

SIMULATION: