29) Implement an Eye detection algorithm using Open CV to detect and locate human eyes in the images.

CODE:

```
import cv2


# Load the image
image = cv2.imread(r"C:\Users\harik\Downloads\CV LAB\face.jpeg")  # Replace with your image file path


# Convert to grayscale
gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)


# Load Haar cascades for face and eye detection
face_cascade = cv2.CascadeClassifier(cv2.data.haarcascades + 'haarcascade_frontalface_default.xml')
eye_cascade = cv2.CascadeClassifier(cv2.data.haarcascades + 'haarcascade_eye.xml')


# Detect faces in the image
faces = face_cascade.detectMultiScale(gray, scaleFactor=1.1, minNeighbors=5)


for (x, y, w, h) in faces:
    # Draw rectangle around the face
    cv2.rectangle(image, (x, y), (x+w, y+h), (255, 0, 0), 2)


    # Region of Interest (ROI) for eyes within the face
    roi_gray = gray[y:y+h, x:x+w]
    roi_color = image[y:y+h, x:x+w]


    # Detect eyes within the face ROI
    eyes = eye_cascade.detectMultiScale(roi_gray, scaleFactor=1.1, minNeighbors=10)


    for (ex, ey, ew, eh) in eyes:
```

```
        cv2.rectangle(roi_color, (ex, ey), (ex+ew, ey+eh), (0, 255, 0), 2)


# Show result
cv2.imshow('Eye Detection', image)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

OUTPUT: