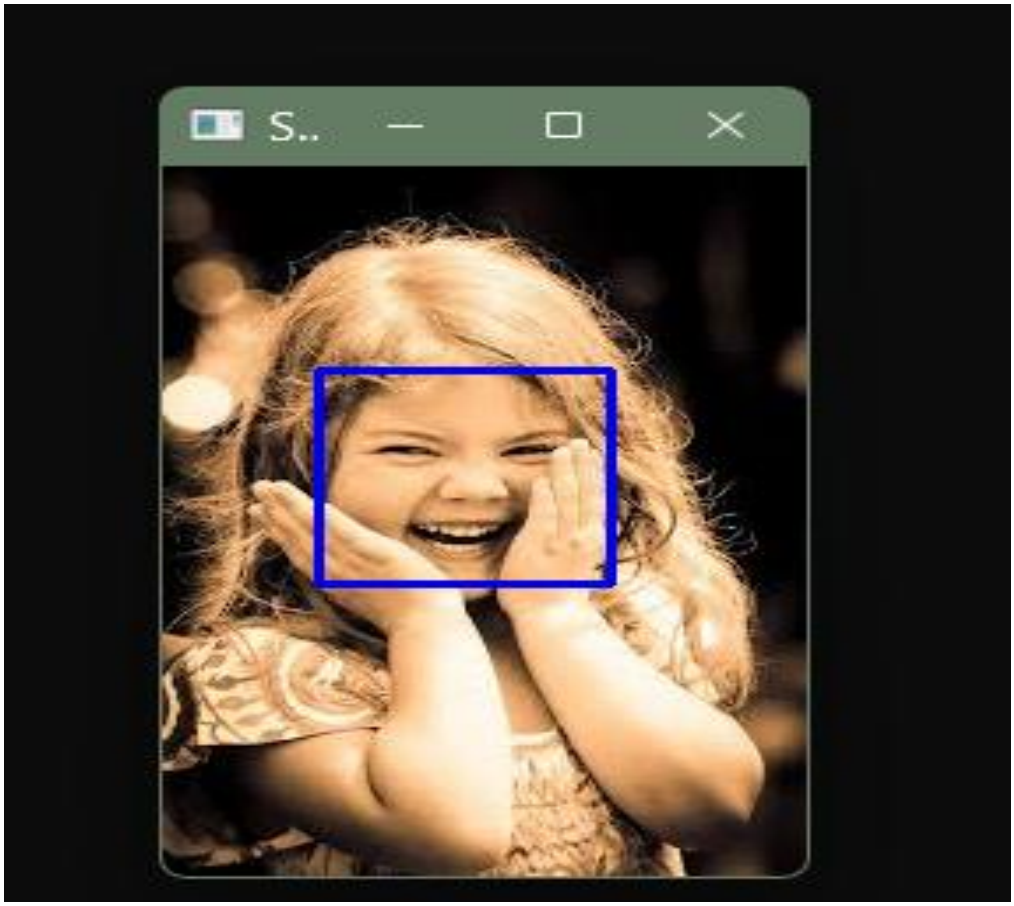
Implement a Smile detection algorithm using Open CV to detect and locate human smile in the images.

CODE:

```
import cv2

# Load pre-trained Haar cascade classifiers for face and smile
face_cascade = cv2.CascadeClassifier(cv2.data.haarcascades +
'haarcascade_frontalface_default.xml')
smile_cascade = cv2.CascadeClassifier(cv2.data.haarcascades + 'haarcascade_smile.xml')

# Load an image from file
image = cv2.imread(r"C:\Users\harik\Downloads\CV LAB\smile.jpeg")
gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)

# Detect faces in the image
faces = face_cascade.detectMultiScale(gray, scaleFactor=1.3, minNeighbors=5)

# Loop over detected faces
for (x, y, w, h) in faces:
    roi_gray = gray[y:y+h, x:x+w]
    roi_color = image[y:y+h, x:x+w]

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

    # Detect smiles within the face region
    smiles = smile_cascade.detectMultiScale(
        roi_gray,
        scaleFactor=1.8,
        minNeighbors=20
    )

    # Draw rectangle around each smile
    for (sx, sy, sw, sh) in smiles:
        cv2.rectangle(roi_color, (sx, sy), (sx+sw, sy+sh), (0, 255, 0), 2)

# Display the output
cv2.imshow('Smile Detection', image)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

OUTPUT:


S..