EXERCISE NO. 6
FACE DETECTION USING OPENCV

AIM:
To implement a program for face detection using OpenCV.

ALGORITHM:

1. Import the necessary libraries.
2. Load the pre-trained Haar Cascade classifier for face detection.
3. Load the image and resize it.
4. Process the image to detect faces.

PROGRAM:

```
import cv2
from google.colab.patches import cv2_imshow

face_cascade = cv2.CascadeClassifier(cv2.data.haarcascades + 'haarcascade_frontalface_default.xml')

if face_cascade.empty():
    print("Error: Haar cascade file not loaded correctly.")

def detect_faces(image):
    gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)

    faces = face_cascade.detectMultiScale(gray, scaleFactor=1.1, minNeighbors=3, minSize=(30, 30))

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

    return image

image_path = '/img2.jpg'
image = cv2.imread(image_path)
image = cv2.resize(image, (600, 400))
cv2_imshow(cv2.cvtColor(image, cv2.COLOR_BGR2GRAY))
if image is None:
    print("Error: Could not load image. Check the file path.")
```

```
else:
    processed_image = detect_faces(image)
    cv2_imshow(processed_image)

cv2.destroyAllWindows()
```

OUTPUT:

RESULT:

Thus the program has been successfully implemented and verified.