Image-Acquisition-from-Web-Camera

Aim

Aim:

To write a python program using OpenCV to capture the image from the web camera and do the following image manipulations.

```
i) Write the frame as JPG
ii) Display the video
iii) Display the video by resizing the window
iv) Rotate and display the video
```

Software Used

Anaconda - Python 3.7

Algorithm

Step 1:

Import Opencv and numpy(selective programs).

Step 2:

Using VideoCapture(0), you can capture the picture.

Step 3:

Using read(),you can read the given inpiut through webcam.

Step 4:

Using get() or shape() we can divide the screens into many parts.

Step 5:

End the Program.

Program:

```
Python
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## i) Write the frame as JPG file

import cv2
Capture=cv2.VideoCapture(0)
while(True):
    R,Frame=Capture.read()
    cv2.imwrite("Current Pic.jpg",Frame)
    result=False
    if cv2.waitkey(1)==ord('q'):
        break
Capture.release()q
cv2.destroyAllWindows()

## ii) Display the video

import cv2
Capture=cv2.VideoCapture(0)
while(True):
    R,Frame=Capture.read()
    cv2.imshow("Frame",Frame)
    if cv2.waitKey(1)==ord('q'):
        break
Capture.release()
cv2.destroyAllWindows()

## iii) Display the video by resizing the window

import numpy as np
import cv2
Capture=cv2.VideoCapture(0)
while(True):
    R,Frame=Capture.read()
    Width=int(Capture.get(3))
    Height=int(Capture.get(4))
    image=np.zeros(Frame.shape,np.uint8)
    smaller_frame=cv2.resize(Frame, (0,0), fx=0.5, fy=0.5)
    image[:Height//2,:Width//2]=smaller_frame
    image[Height//2:,:Width//2]=smaller_frame
    image[:Height//2,Width//2:]=smaller_frame
    image[Height//2:,Width//2:]=smaller_frame
    cv2.imshow("Frame",image)
    if cv2.waitKey(1)==ord('q'):
```
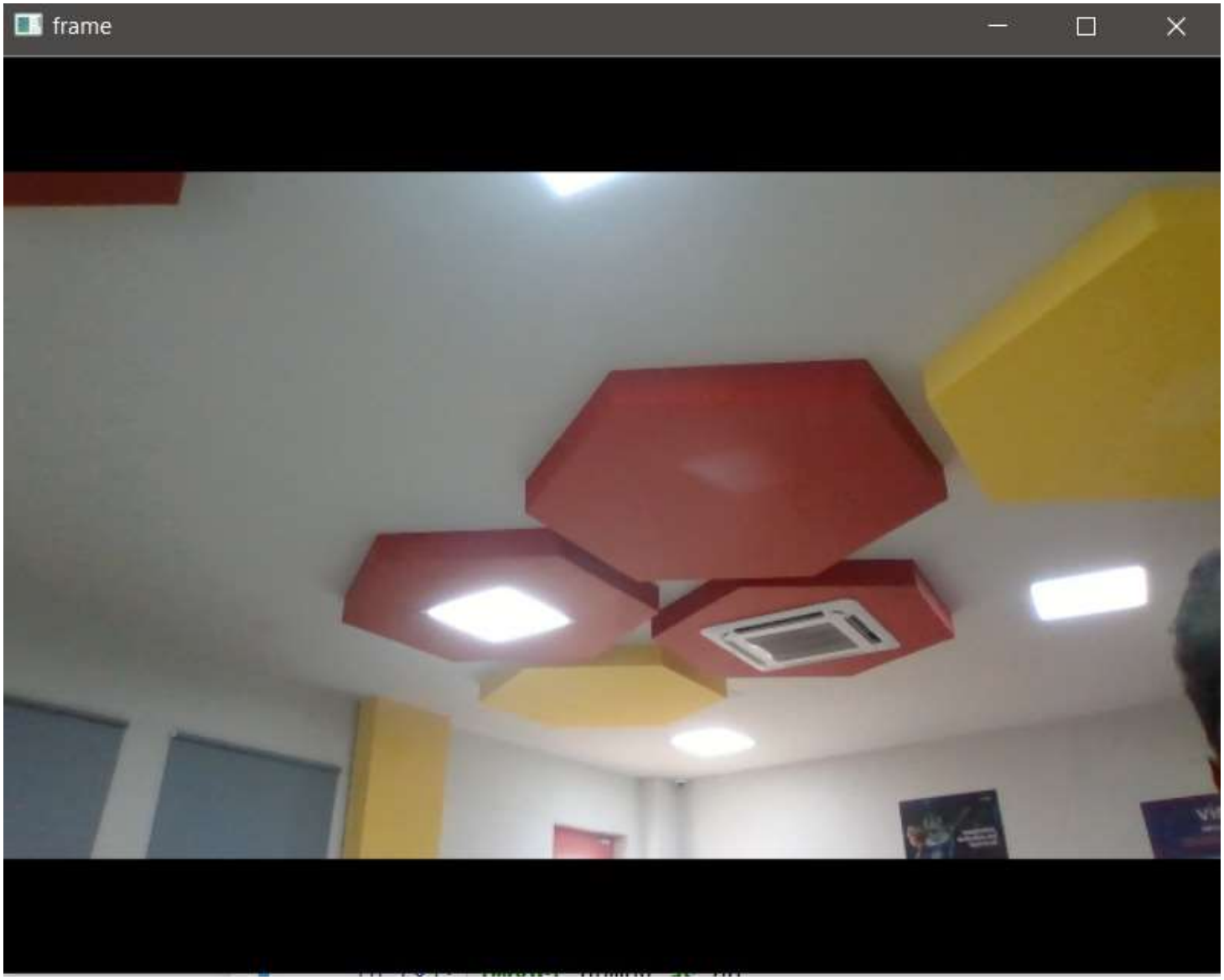

```
        breakq
Capture.release()
cv2.destroyAllWindows()

## iv) Rotate and display the video

import numpy as np
import cv2
Capture=cv2.VideoCapture(0)
while(True):
    R,Frame=Capture.read()
    Width=int(Capture.get(3))
    Height=int(Capture.get(4))
    image=np.zeros(Frame.shape,np.uint8)
    smaller_frame=cv2.resize(Frame, (0,0), fx=0.5, fy=0.5)
    image[:Height//2,:Width//2]=smaller_frame
    image[Height//2:,:Width//2]=cv2.rotate(smaller_frame,cv2.ROTATE_180)
    image[:Height//2,Width//2:]=smaller_frame
    image[Height//2:,Width//2:]=cv2.rotate(smaller_frame,cv2.ROTATE_180)
    cv2.imshow("Frame",image)
    if cv2.waitKey(1)==ord('q'):
        break
Capture.release()
cv2.destroyAllWindows()
```

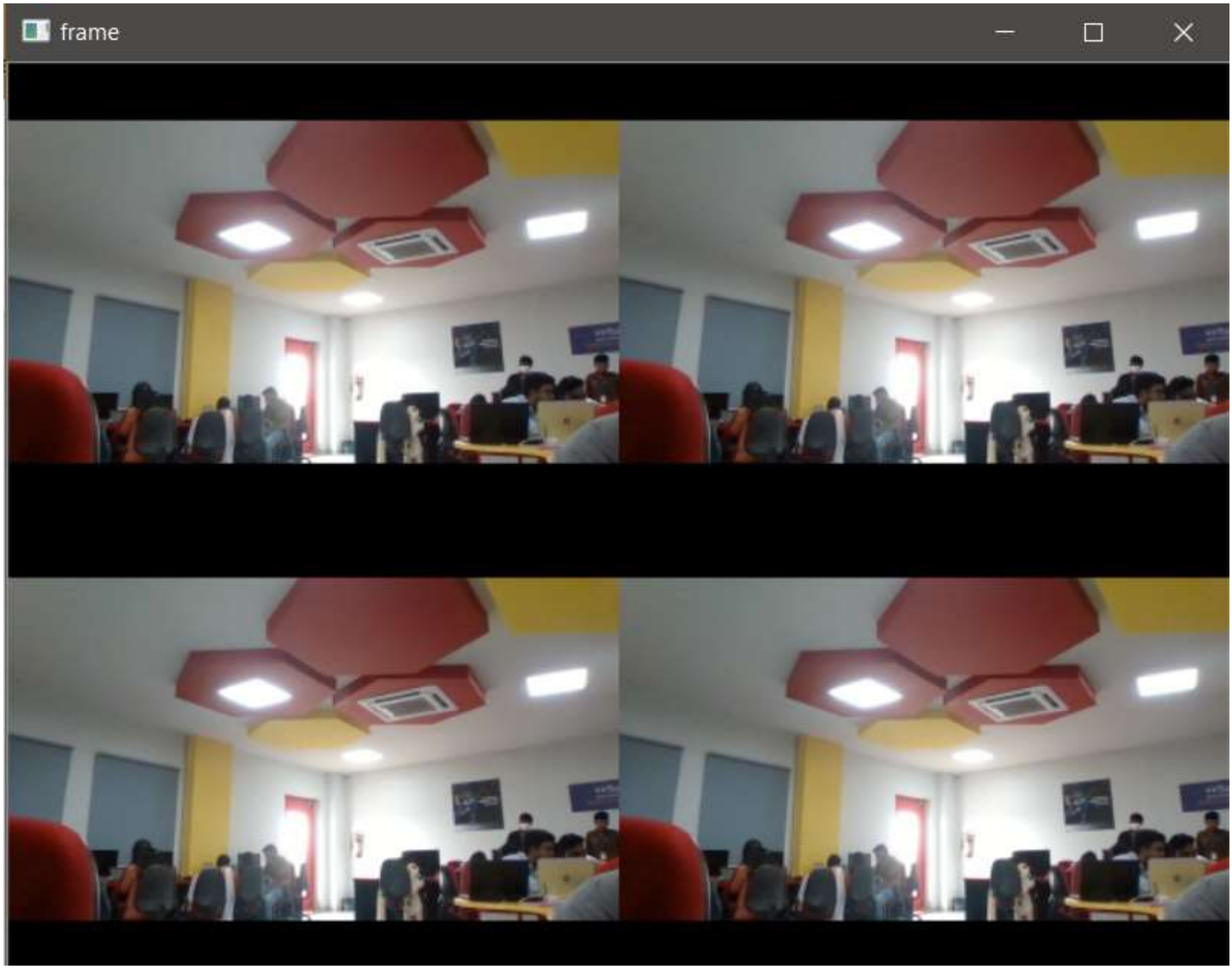
Output:

i) Write the frame as JPG image

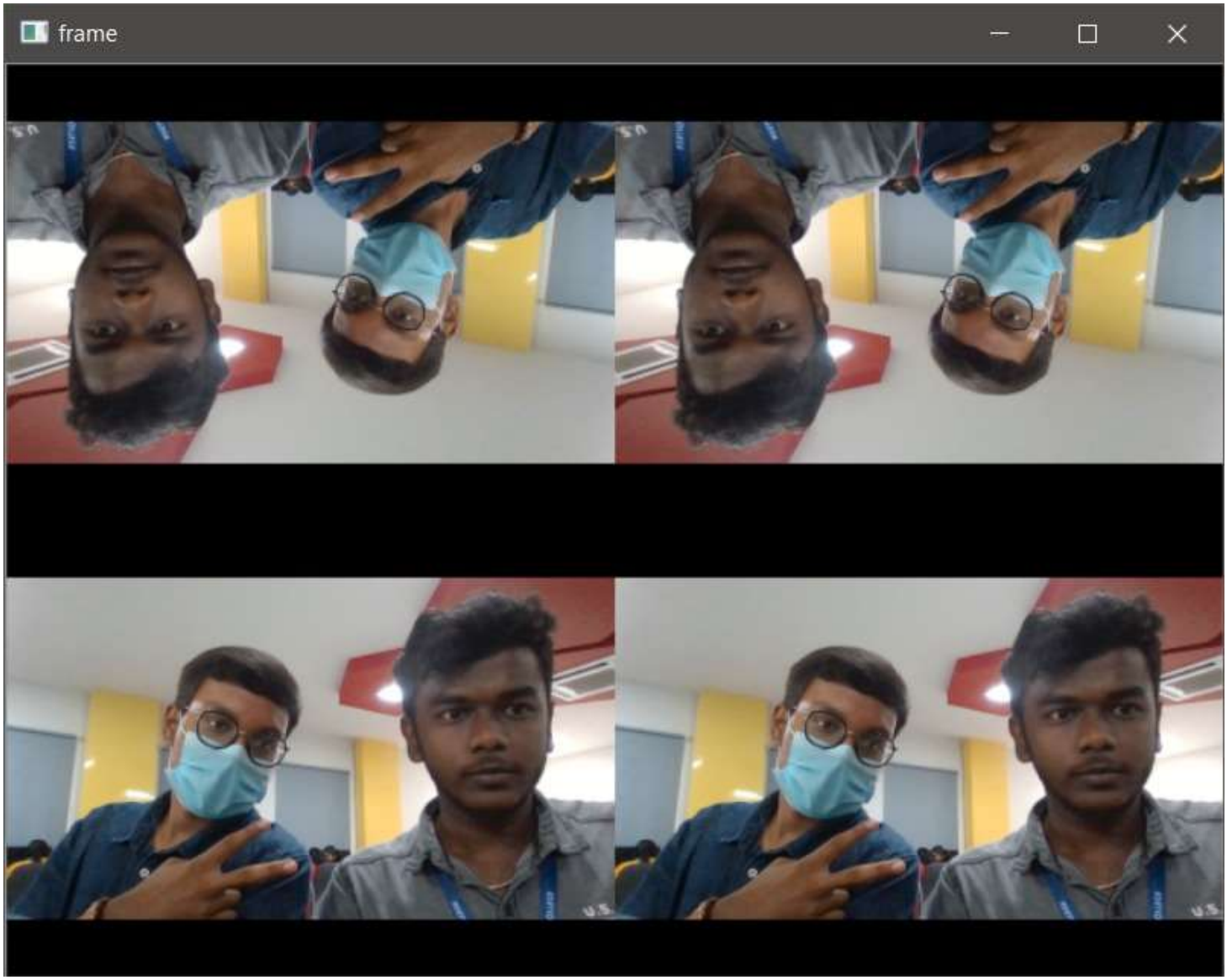
ii) Display the video



› iii) Display the video by resizing the window



› iv) Rotate and display the video



Result:

Thus the image is accessed from webcamera and displayed using openCV.