Image Acquisition from Web Camera

Aim

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

1. Write the frame as JPG
2. Display the video
3. Display the video by resizing the window
4. Rotate and display the video

Software Used

Anaconda - Python 3.7

Algorithm

Step 1:

Import cv2 and capture the video using cv2.VideoCapture(0)

Step 2:

Write the captured image using cv2.imwrite("NewPicture.jpg",frame)

Step 3:

Resize the image using cv2.resize() to get a four-split screen.

Step 4:

Rotate the image using cv2.rotate(smaller_frame,cv2.cv2.ROTATE_180)

Step 5:

Display the image until the key to close the window is pressed.

Program:

Developed By: **Shafeeq Ahamed.S**
Register No: **212221230092**

i) Write the frame as JPG file

```
obj = cv2.VideoCapture(0)
while(True):
    cap,frame = obj.read()
    cv2.imshow('video_image.jpg',frame)
    cv2.imwrite("out.jpg",frame)
    if cv2.waitKey(1) == ord('q'):
        break
obj.release()
cv2.destroyAllWindows()
```

ii) Display the video

```
obj = cv2.VideoCapture(0)
while(True):
    cap,frame = obj.read()
    cv2.imshow('video_image',frame)
    if cv2.waitKey(1) == ord('q'):
        break
obj.release()
cv2.destroyAllWindows()
```

iii) Display the video by resizing the window

```
obj = cv2.VideoCapture(0)
while True:
    cap, frame = obj.read()
    h = int(obj.get(4))
    w = int(obj.get(3))
    sm_frame = cv2.resize(frame, (0,0), fx=0.5 , fy=0.5)
    im = np.ones(frame.shape,np.uint8)*200
    im[125:(h//2)+125,135:(w//2)+135] = sm_frame
    cv2.imshow("Pic",im)
    if cv2.waitKey(1) == ord('q'):
        break
obj.release()
cv2.destroyAllWindows()
```

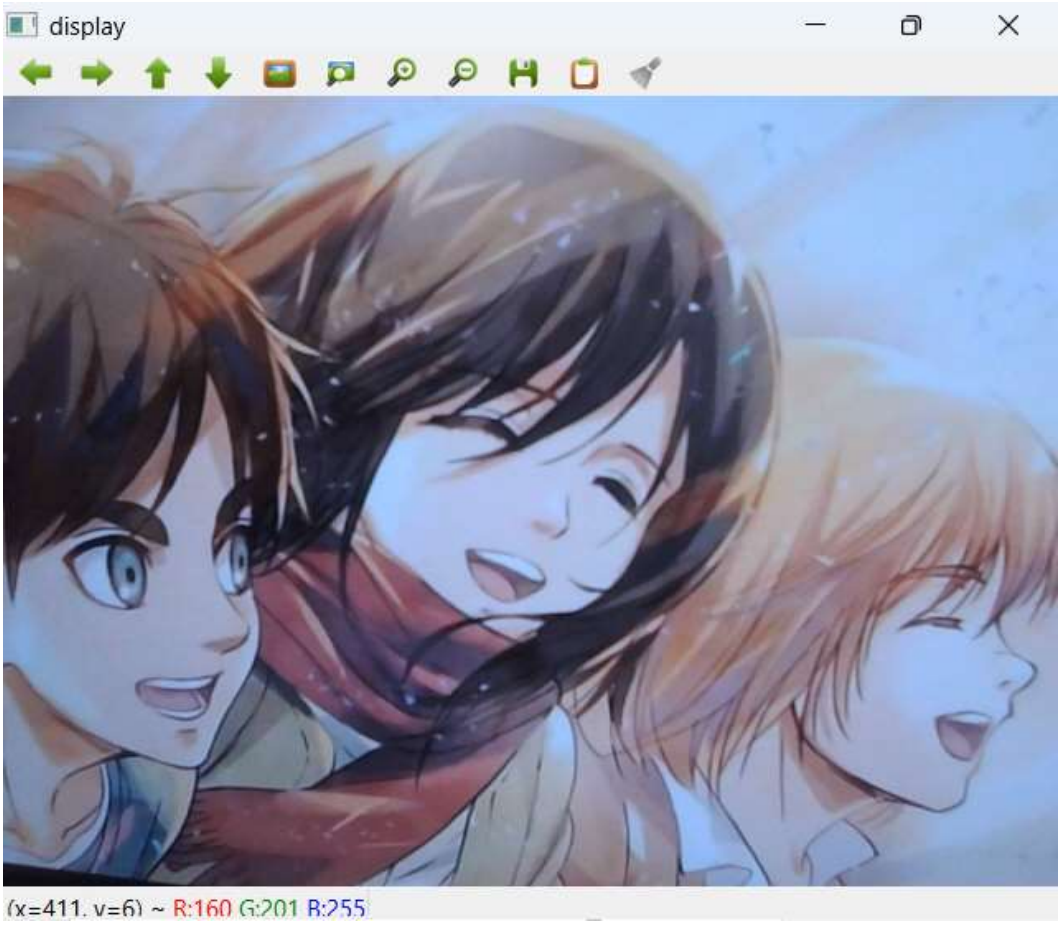
iv) Rotate and display the video

```
obj = cv2.VideoCapture(0)
while True:
    cap, frame = obj.read()
    h = int(obj.get(4))
    w = int(obj.get(3))
    im = np.ones(frame.shape,np.uint8)*185
    sf = cv2.resize(frame, (0,0), fx=0.5 , fy=0.5)
     - #+/- 80
    im[75:(height//2)+155, 35:(width//2)-45] = cv2.rotate(sf,cv2.ROTATE_90_CLOCKWISE)
    im[:height//2, width//2:] = sf
    im[height//2:, width//2:] = cv2.rotate(sf,cv2.ROTATE_180)
    cv2.imshow("Pic",im)
    if cv2.waitKey(1) == ord('q'):
        break
obj.release()
cv2.destroyAllWindows()
```

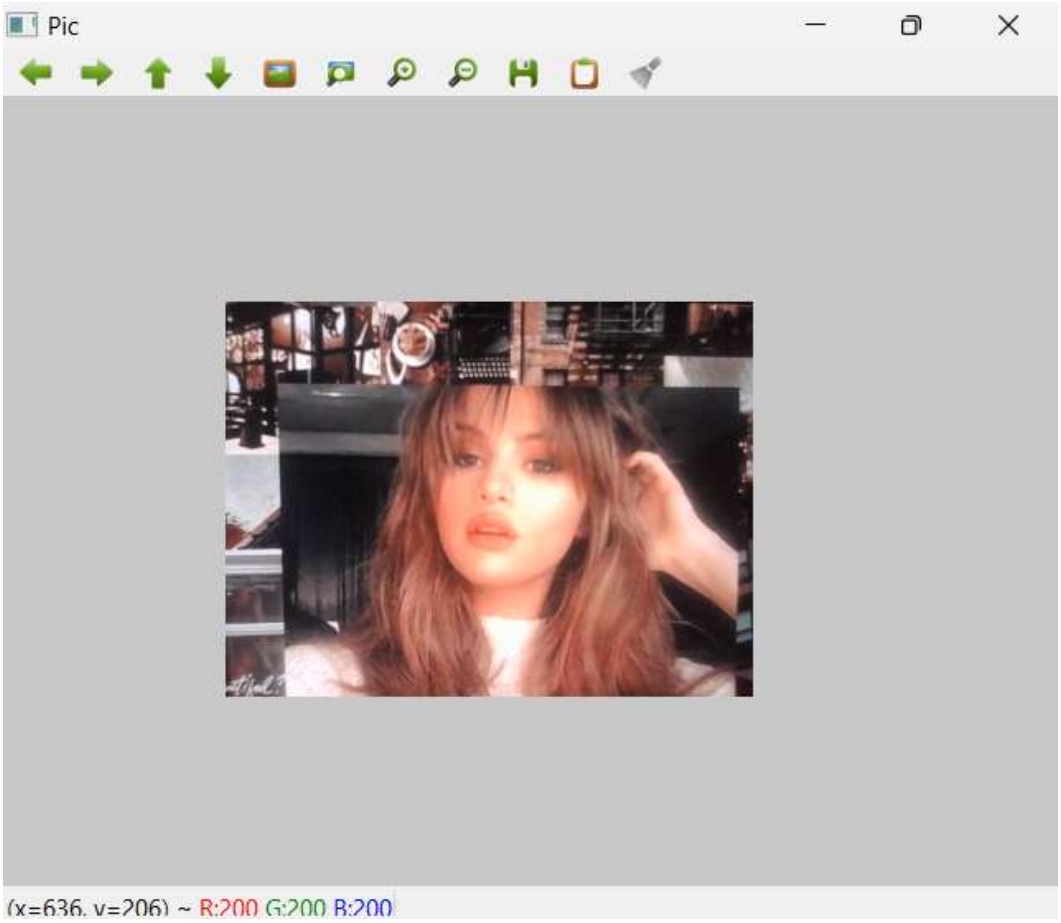
Output

i) Write the frame as JPG image

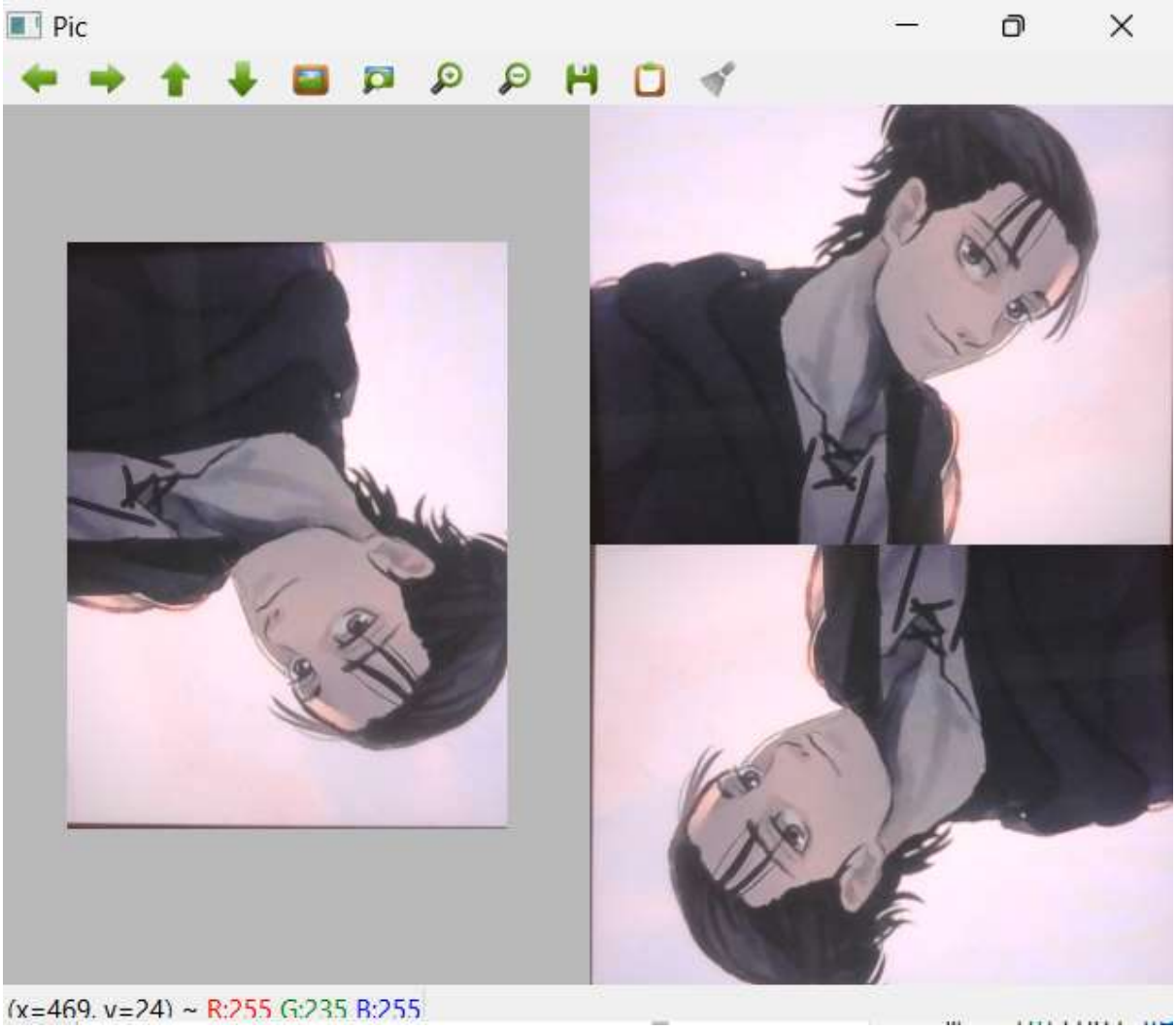
ii) Display the video



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.