1. **Perform basic Image Handling and processing operations on the image. • Read an image in python and Convert an Image to Grayscale**

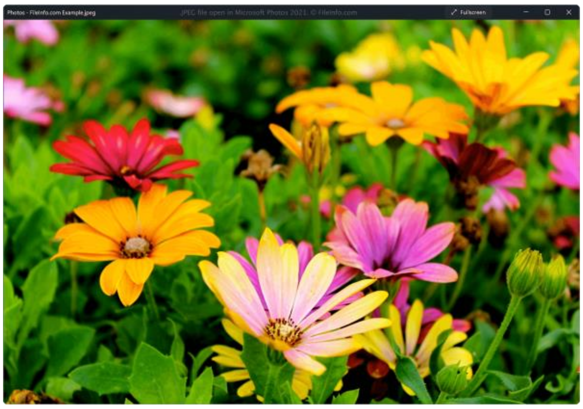
AIM:

To Perform Basic Operations to Read Image and Convert to Grayscale using Python

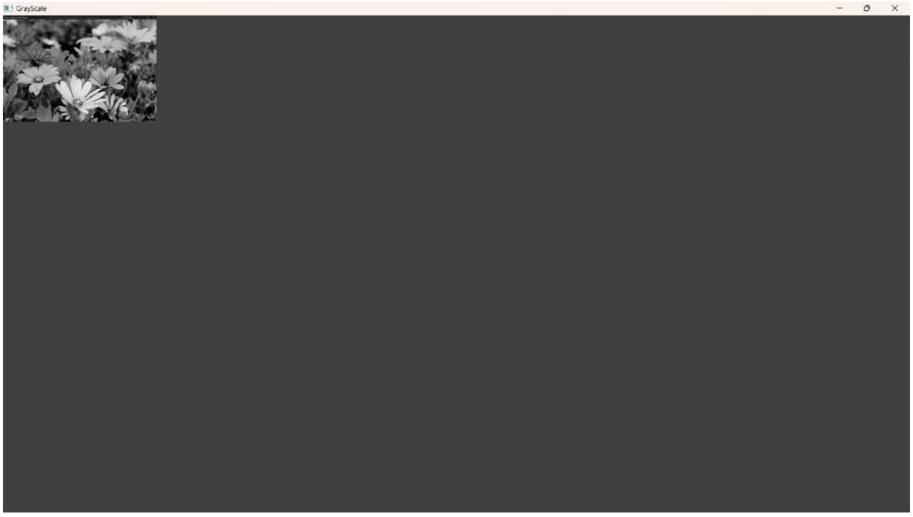
PROGRAM:

```
import cv2
import numpy as np
kernel = np.ones((5,5),np.uint8)
print(kernel)
path="C:/Users/91824/OneDrive/flower.jpeg"
img =cv2.imread(path)
imgGray = cv2.cvtColor(img,cv2.COLOR_BGR2GRAY)
cv2.imshow("GrayScale",imgGray)
cv2.waitKey(0)
```

INPUT:


Photos - FileInfo.com Example.jpeg
JPEG file open in Microsoft Photos 2021. © FileInfo.com
Fullscreen

OUTPUT:



2. Perform basic Image Handling and processing operations on the image.• Read an image in python and Convert an Image to Blur using GaussianBlur.

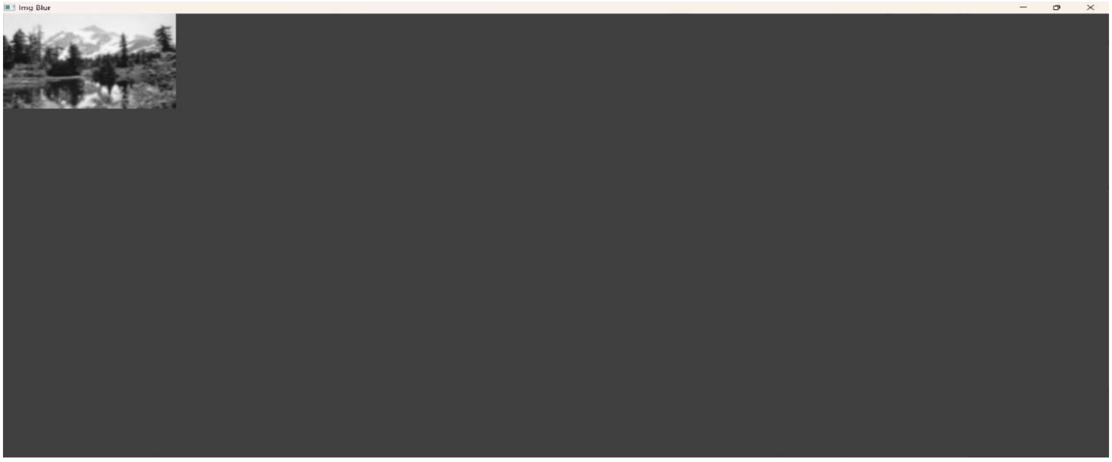
AIM:
To Perform Basic Operations to Read Image and Convert to Blur using **GaussianBlur.**

PROGRAM:

```
import cv2
import numpy as np
kernel = np.ones((5,5),np.uint8)
print(kernel)
path="C:/Users/91824/OneDrive/forest.jpeg"
img =cv2.imread(path)
imgGray = cv2.cvtColor(img,cv2.COLOR_BGR2GRAY)
imgBlur = cv2.GaussianBlur(imgGray,(7,7),0)
cv2.imshow("Img Blur",imgBlur)
cv2.waitKey(0)
```

INPUT:

OUTPUT:



3. **Perform basic Image Handling and processing operations on the image• Read an image in python and Convert an Image to show outline using Canny function**

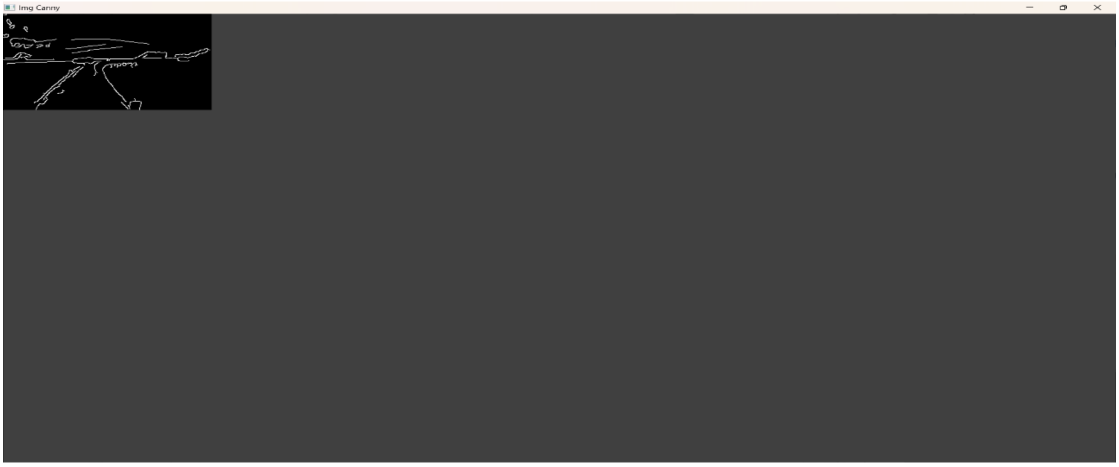
AIM:
To Perform Basic Operations to Convert image to show outline Canny function in Python

PROGRAM:

```
import cv2
import numpy as np
kernel = np.ones((5,5),np.uint8)
print(kernel)
path = "C:/Users/91824/OneDrive/river.jpeg"
img =cv2.imread(path)
imgGray = cv2.cvtColor(img,cv2.COLOR_BGR2GRAY)
imgBlur = cv2.GaussianBlur(imgGray,(7,7),0)
imgCanny = cv2.Canny(imgBlur,100,200)
cv2.imshow("Img Canny",imgCanny)
cv2.waitKey(0)
```

INPUT:

OUTPUT:



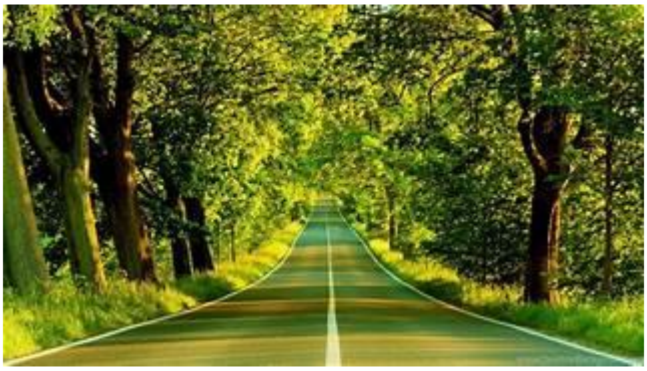
4. **Perform basic Image Handling and processing operations on the image• Read an image in python and Dilate an Image using Dilate function**

AIM:
To Perform Basic Operations to Read Image and Dilate an Image using Python

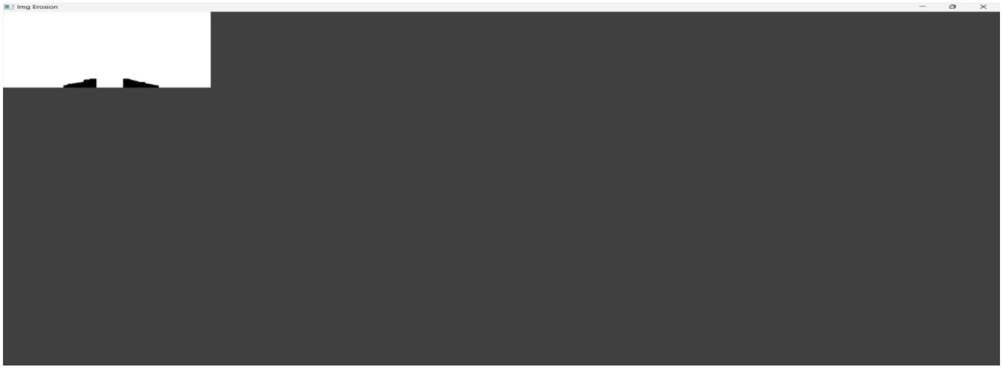
PROGRAM:

```
import cv2
import numpy as np
kernel = np.ones((5,5),np.uint8)
print(kernel)
path = "C:/Users/91824/OneDrive/trees.jpeg"
img =cv2.imread(path)
imgGray = cv2.cvtColor(img,cv2.COLOR_BGR2GRAY)
imgBlur = cv2.GaussianBlur(imgGray,(7,7),0)
imgCanny = cv2.Canny(imgBlur,100,200)
imgDilation = cv2.dilate(imgCanny,kernel , iterations = 10)
imgEroded = cv2.erode(imgDilation,kernel,iterations=2)
cv2.imshow("Img Erosion",imgEroded)
cv2.waitKey(0)
```

INPUT:



OUTPUT:



5. Perform basic Image Handling and processing operations on the image• Read an image in python and Erode an Image using erode function

AIM:

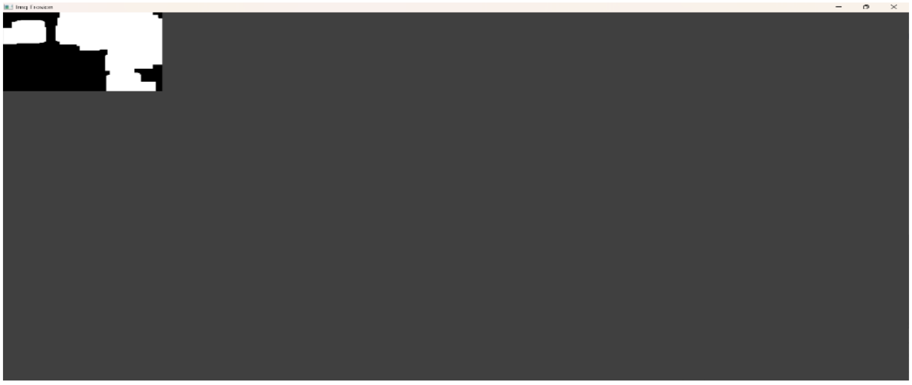
The Aim of the experiment is to Read an image in python and Erode an Image using erode function

PROGRAM:

```
import cv2
import numpy as np
kernel = np.ones((5,5),np.uint8)
print(kernel)
path = "C:/Users/91824/OneDrive/nature.jpg"
img =cv2.imread(path)
imgGray = cv2.cvtColor(img,cv2.COLOR_BGR2GRAY)
imgBlur = cv2.GaussianBlur(imgGray,(7,7),0)
imgCanny = cv2.Canny(imgBlur,100,200)
imgDilation = cv2.dilate(imgCanny,kernel , iterations = 10)
imgEroded = cv2.erode(imgDilation,kernel,iterations=2)
cv2.imshow("Img Erosion",imgEroded)
cv2.waitKey(0)
```

INPUT:

OUTPUT:



6. **Perform basic video processing operations on the captured video• Read captured video in python and display the video, in slow motion and in fast motion.**

AIM:

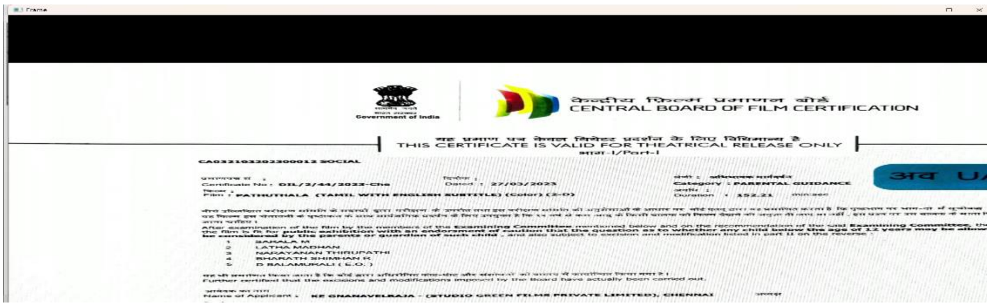
The Aim of the Experiment is to Read captured video in python and display the video, in slow motion and in fast motion

PROGRAM:

```
import cv2
import numpy as np
cap = cv2.VideoCapture("C:/Users/91824/Videos/@Team_Hevc - Pathu Thala (2023)
1080p HQ HDRip Multi ESu.mkv")
if (cap.isOpened()== False):
   print("Error opening video file")
while(cap.isOpened()):
   ret, frame = cap.read()
   if ret == True:
      cv2.imshow('Frame', frame)
      if cv2.waitKey(250) & 0xFF == ord('q'):
         break
   else:
      break
cap.release()
cv2.destroyAllWindows()
```

INPUT:

OUTPUT:



केन्द्रीय फिल्म प्रमाणन बोर्ड
CENTRAL BOARD OF FILM CERTIFICATION

यह प्रमाण पत्र केवल सिनेमा प्रदर्शन के लिए विधिमान्य है
THIS CERTIFICATE IS VALID FOR THEATRICAL RELEASE ONLY
भाग-I/Part-I

CA032103202300013 SOCIAL

Certificate No : DIL/2/44/2023-Che Dated : 27/03/2023 Category : PARENTAL GUIDANCE

Film : PATHUTHALA (TAMIL WITH ENGLISH SUBTITLE) (Color) (2-D) Duration : 152.21 min:sec

After examination of the film by the members of the Examining Committee mentioned below and on the recommendation of the said Examining Committee, the film is fit for public exhibition with an endorsement of caution that the question as to whether any child below the age of 12 years may be allow be considered by the parents or guardian of such child , and also subject to excision and modification listed in part II on the reverse :

1 SAKALA M
2 LATHA MADHAN
3 NARAYANAN THIRUPATHI
4 BHARATH SHIMHAN R
5 D BALAMURALI (E.O.)

Further certified that the excisions and modifications imposed by the Board have actually been carried out.

Name of Applicant : KE GNANAVELRAJA - (STUDIO GREEN FILMS PRIVATE LIMITED), CHENNAI

7. **Capture video from web Camera and Display the video, in slow motion and in fast motion operations on the captured video**

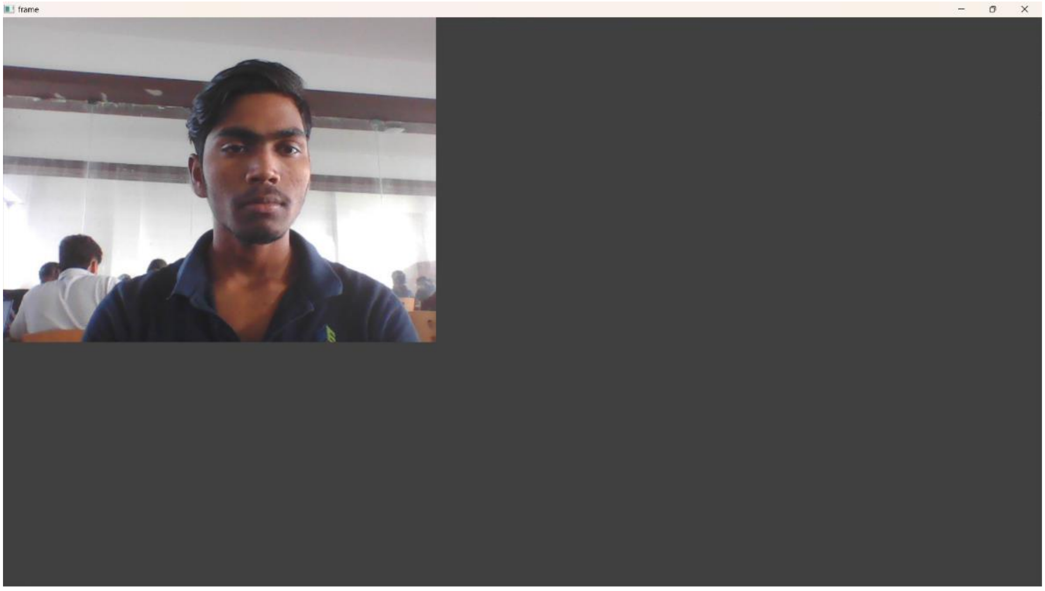
AIM:

The Aim is to Capture video from web Camera and Display the video, in slow motion and in fast motion operations on the captured video

PROGRAM:

```
import cv2
cap = cv2.VideoCapture(0)
height = int(cap.get(cv2.CAP_PROP_FRAME_HEIGHT))
width = int(cap.get(cv2.CAP_PROP_FRAME_WIDTH))
fps = cap.get(cv2.CAP_PROP_FPS)
path = "output.mp4"
fourcc = cv2.VideoWriter_fourcc(*'mp4v')
output = cv2.VideoWriter(path, fourcc, 2, (width, height))
while True:
    ret, frame = cap.read()
    cv2.imshow("frame", frame)
    output.write(frame)
    k = cv2.waitKey(24)
    if k == ord("q"):
        break
cap.release()
output.release()
cv2.destroyAllWindows()
```

OUTPUT:



8. **Scaling an image to its Bigger and Smaller sizes**.

AIM:

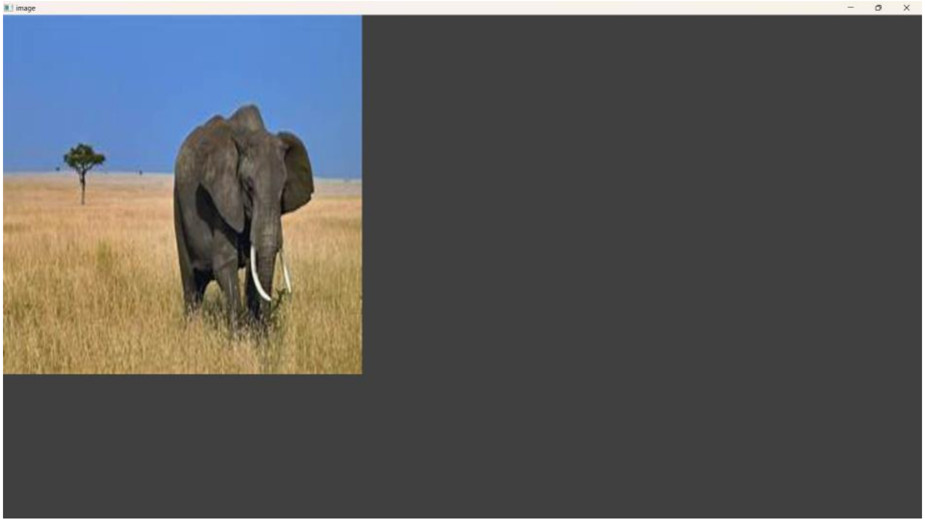
The Aim is resize the image from bigger to smaller size

PROGRAM:

```
import cv2
import numpy as np
kernel = np.ones((5,5),np.uint8)
img = cv2.imread("C:/Users/91824/OneDrive/eswar.jpeg",cv2.IMREAD_COLOR)
img = cv2.resize(img,(600,600))
cv2.imshow("image",img)
cv2.waitKey(0)
```

INPUT:

OUTPUT:



9. Perform Rotation of an image to clockwise and counter clockwise direction.

ROTATION 90 ALONG DEGREE:

AIM :

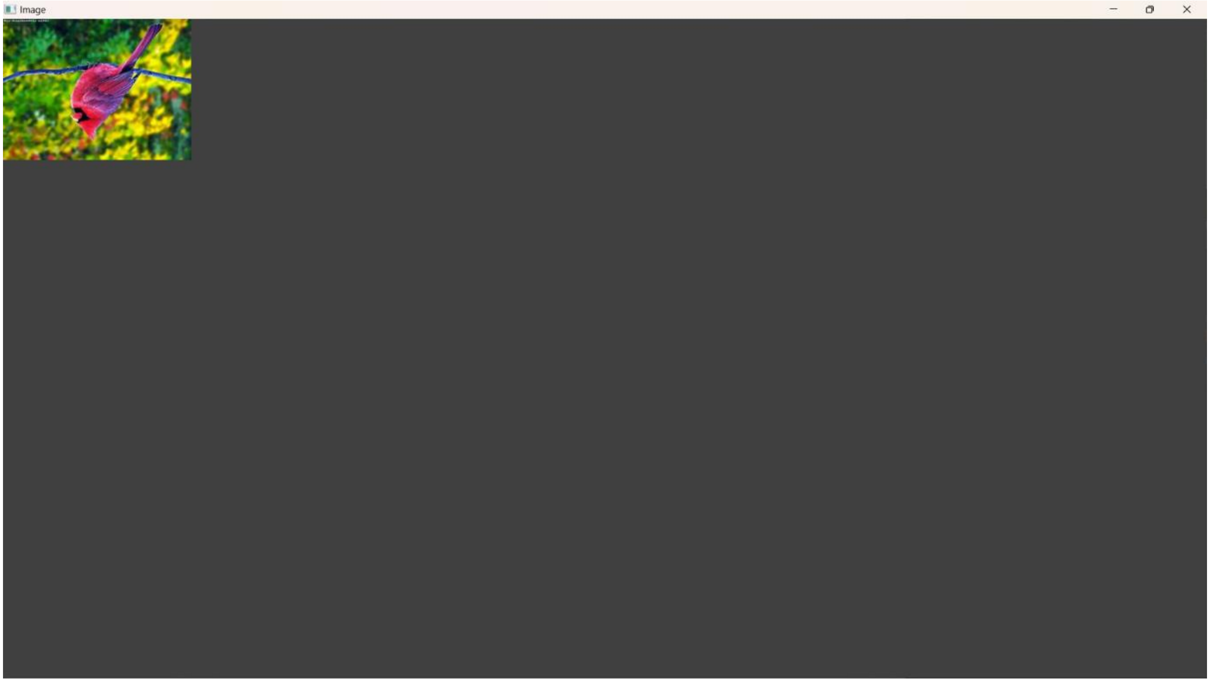
The Aim of the Experiment is to perform Rotation of an image along 90 degree

PROGRAM:

```
import cv2
path ="C:/Users/91824/Downloads/trees.jpeg"
src = cv2.imread(path)
window_name = 'Image'
image = cv2.rotate(src, cv2.ROTATE_180)
cv2.imshow(window_name, image)
cv2.waitKey(0)
```

INPUT:

OUTPUT:



ROTATION ALONG 180 DEGREE

AIM:

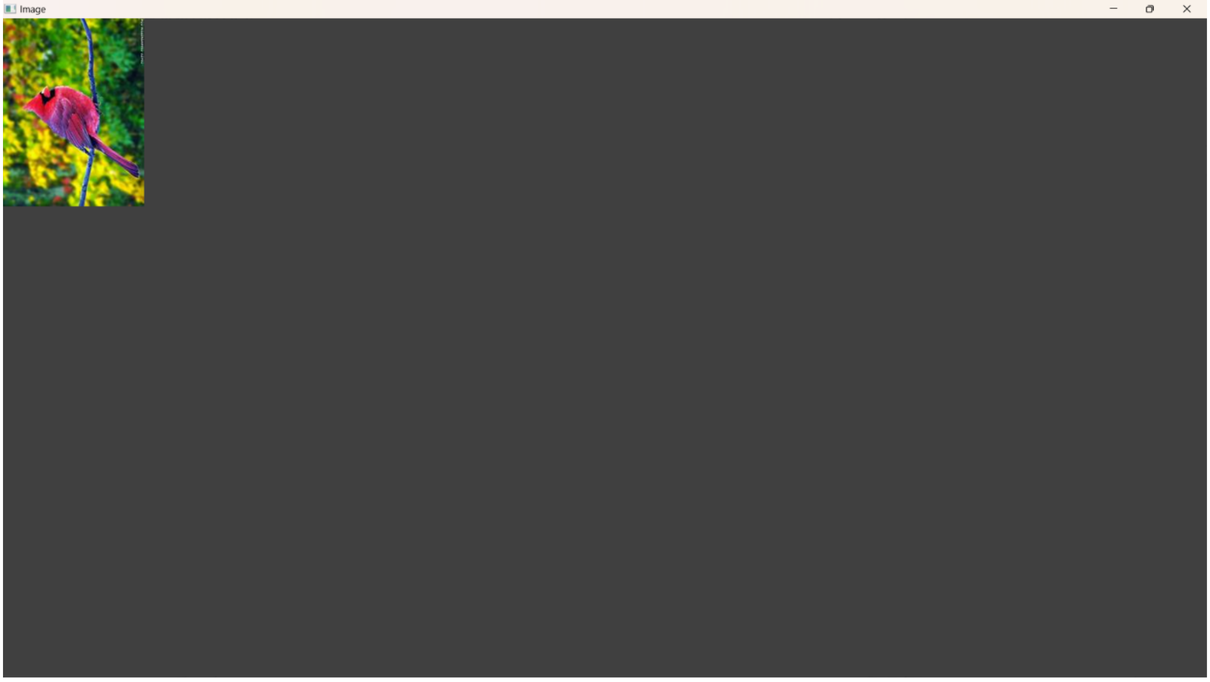
The Aim of the Experiment is to perform Rotation of an image along 180 degree

PROGRAM:

```
import cv2
path ="C:/Users/91824/Downloads/trees.jpeg"
src = cv2.imread(path)
window_name = 'Image'
image = cv2.rotate(src, cv2.ROTATE_90_COUNTERCLOCKWISE)

cv2.imshow(window_name, image)
cv2.waitKey(0)
```

OUTPUT:



10. **ROTATION ALONG 270 DEGREE**

AIM :

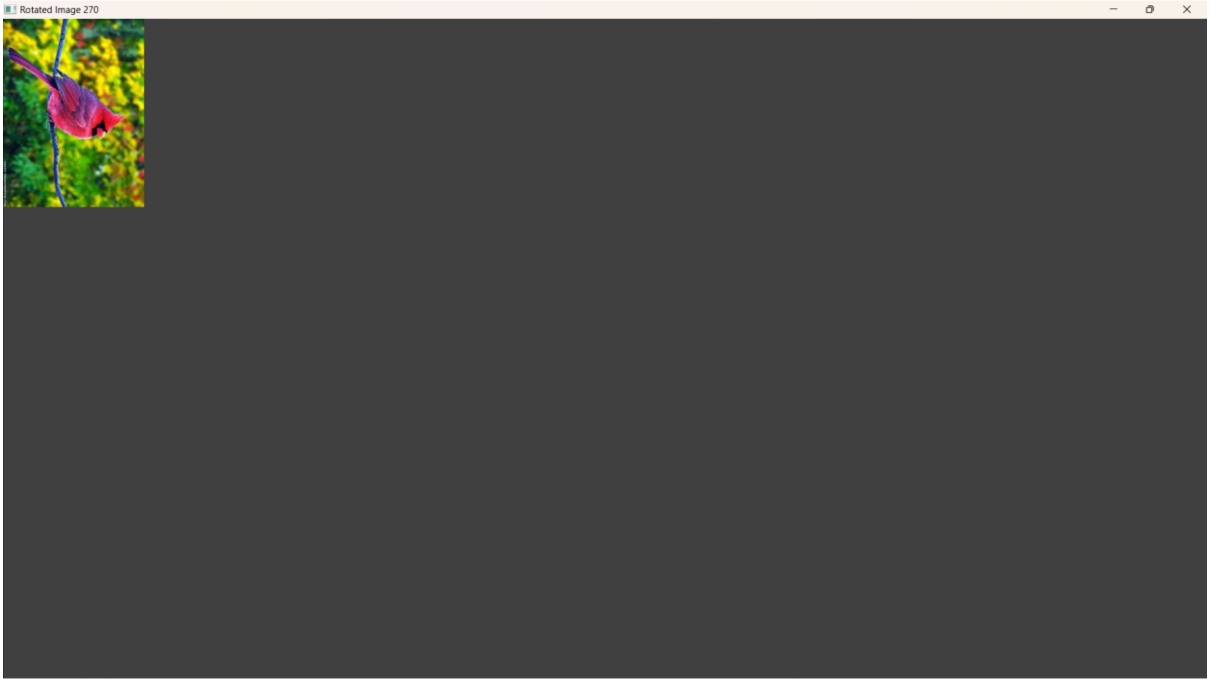
The Aim of the Experiment is to perform Rotation of an image along 270 degree

PROGRAM:

```
import cv2
path = "C:/Users/91824/Downloads/trees.jpeg"
src = cv2.imread(path)
image_rotated_270 = cv2.rotate(src, cv2.ROTATE_90_CLOCKWISE)
cv2.imshow('Rotated Image 270', image_rotated_270)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

OUTPUT:

s


Rotated Image 270