```python
import cv2
import numpy as np
from google.colab.patches import cv2_imshow
from matplotlib import pyplot as plt
from skimage.metrics import
mean_squared_error,peak_signal_noise_ratio,structural_similarity
```

```python
img1=cv2.imread("/content/Screenshot (2).png")
img2=cv2.imread("/content/Screenshot (3).png")
```

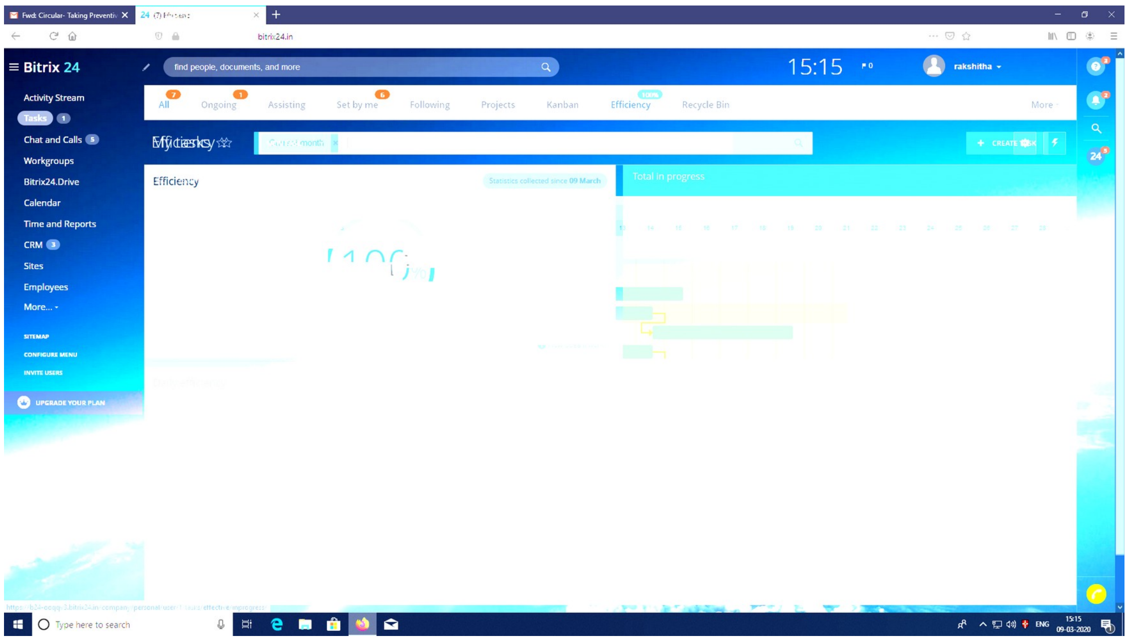
```python
img1.shape
```

```
(1080, 1920, 3)
```

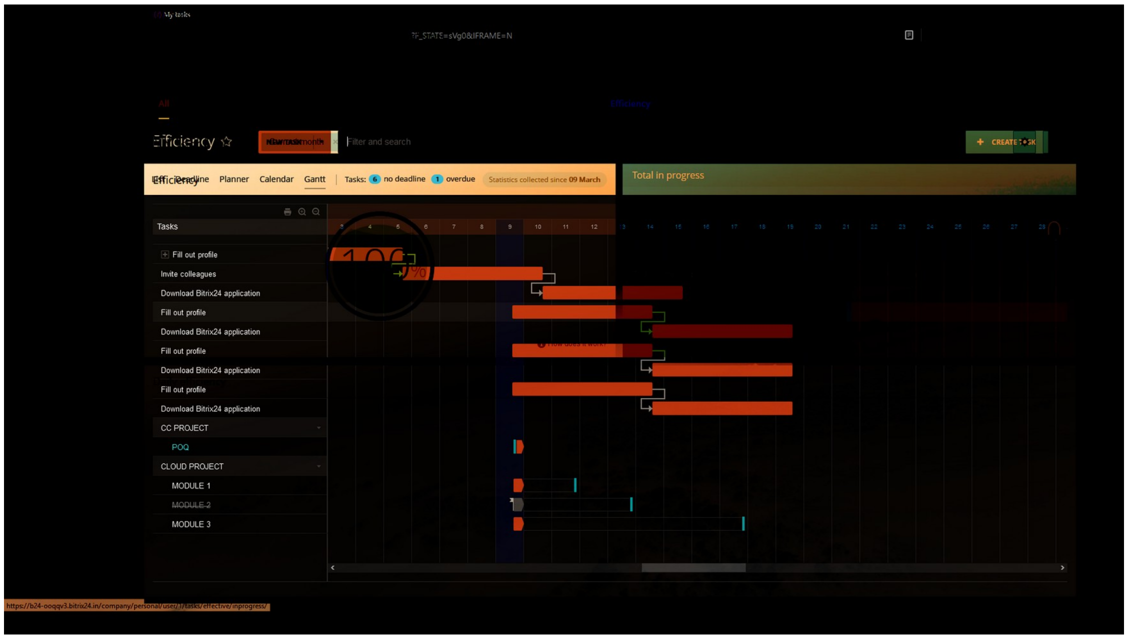
```python
img2.shape
```

```
(1080, 1920, 3)
```

```python
img3=cv2.add(img1,img2)
cv2_imshow(img3)
```



```python
img4=cv2.subtract(img1,img2)
cv2_imshow(img4)
```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Statistics collected since 09 March
Total in progress
Tasks
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Invite colleagues
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Fill out profile
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Fill out profile
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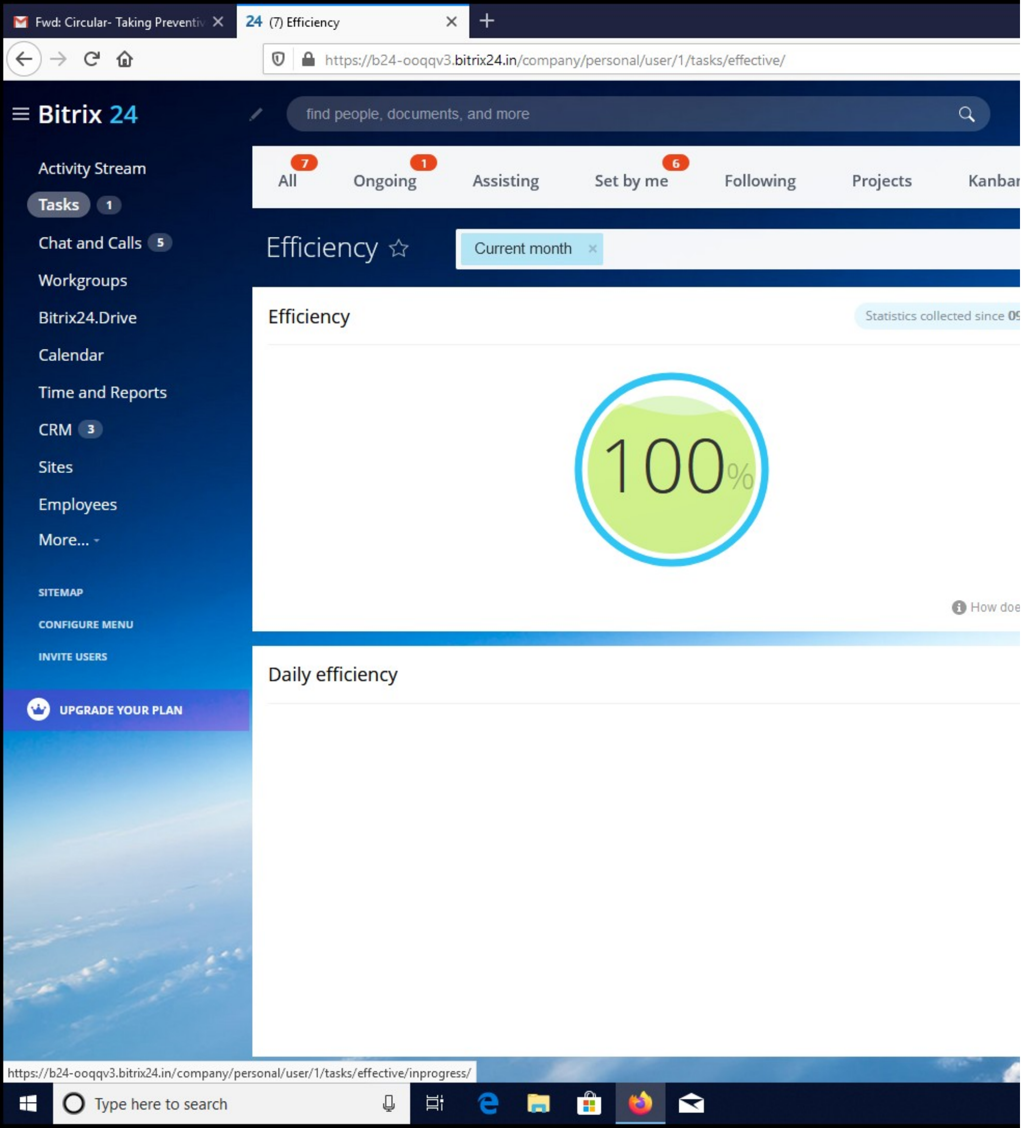
CC PROJECT
POQ
CLOUD PROJECT
MODULE 1
~~MODULE 2~~
MODULE 3
https://b24-ooqqv3.bitrix24.in/company/personal/user/1/tasks/effective/inprogress/

```
M = np.float32([[1,0,100],[0,1,50]])

dst = cv2.warpAffine(img1,M,(1080,1920))
cv2_imshow(dst)
```



Fwd: Circular- Taking Preventiv
(7) Efficiency
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Efficiency
Statistics collected since 09
100%
How doe
Daily efficiency
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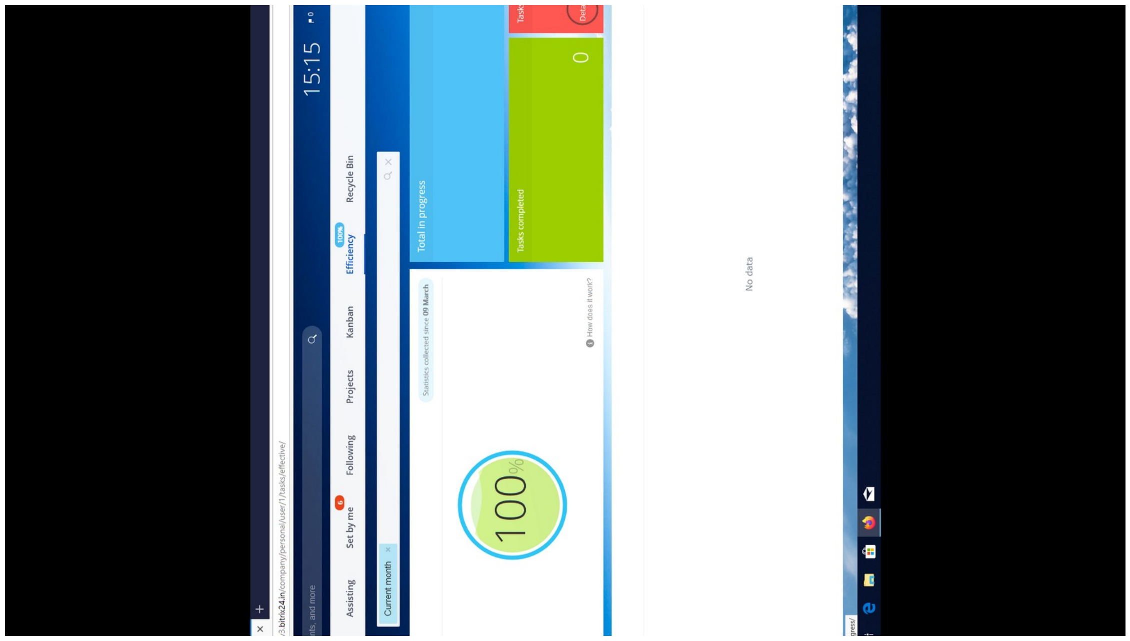
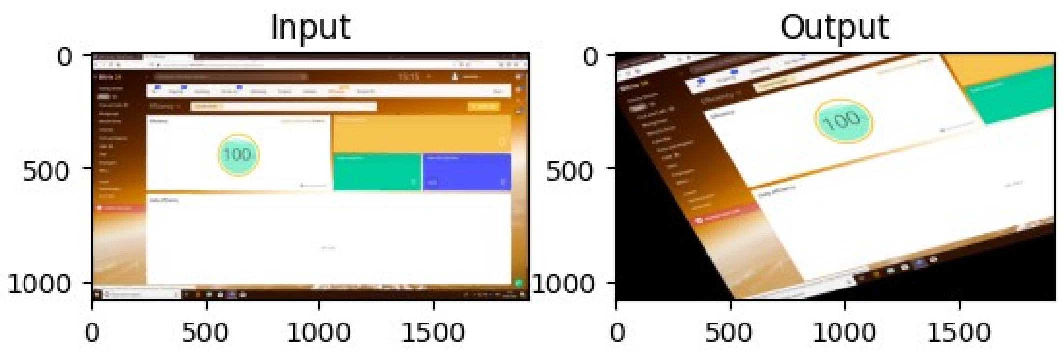
Type here to search

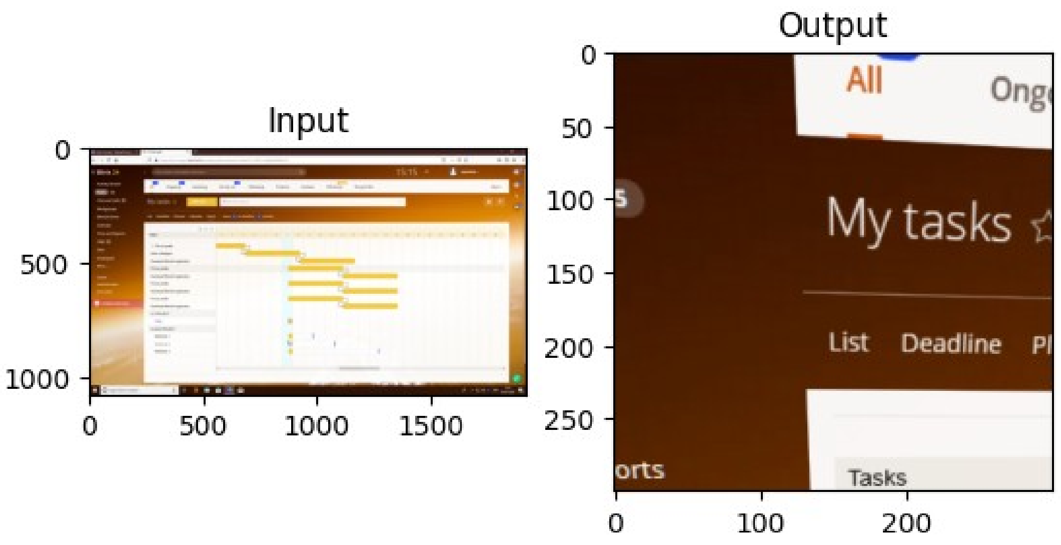
```
rows,cols,cha=img1.shape
M = cv2.getRotationMatrix2D(((cols-1)/2.0,(rows-1)/2.0),90,1)
dst = cv2.warpAffine(img1,M,(cols,rows))
cv2_imshow(dst)
```



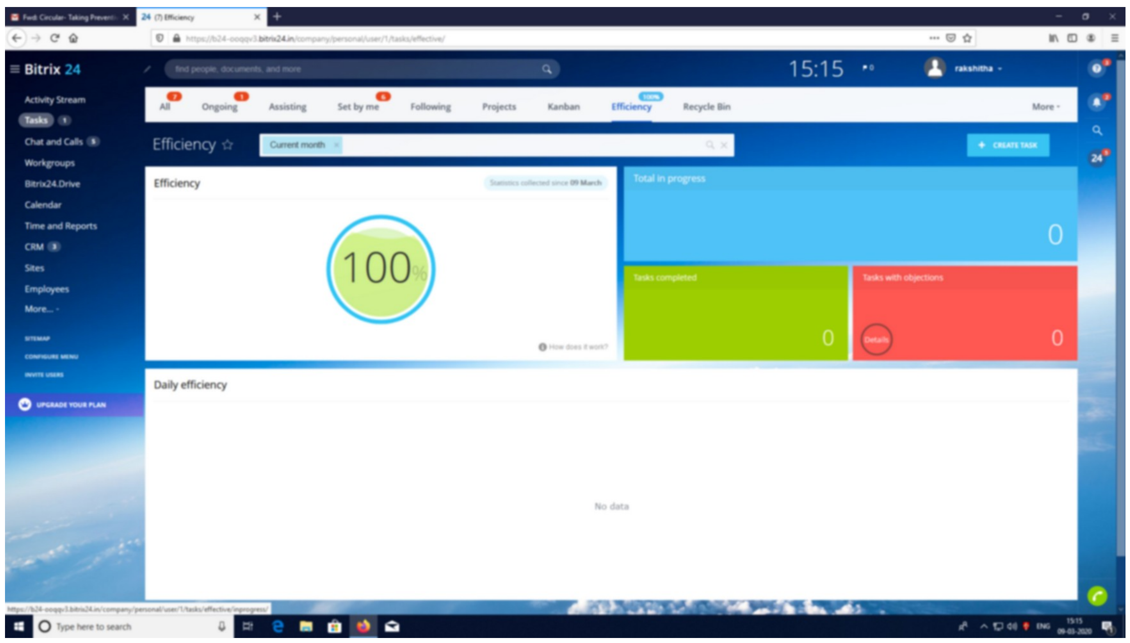
```
rows,cols,ch = img1.shape
pts1 = np.float32([[50,50],[200,50],[50,200]])
pts2 = np.float32([[10,100],[200,50],[100,250]])
M = cv2.getAffineTransform(pts1,pts2)
dst = cv2.warpAffine(img1,M,(cols,rows))
plt.subplot(121),plt.imshow(img1),plt.title('Input')
plt.subplot(122),plt.imshow(dst),plt.title('Output')
plt.show()
```



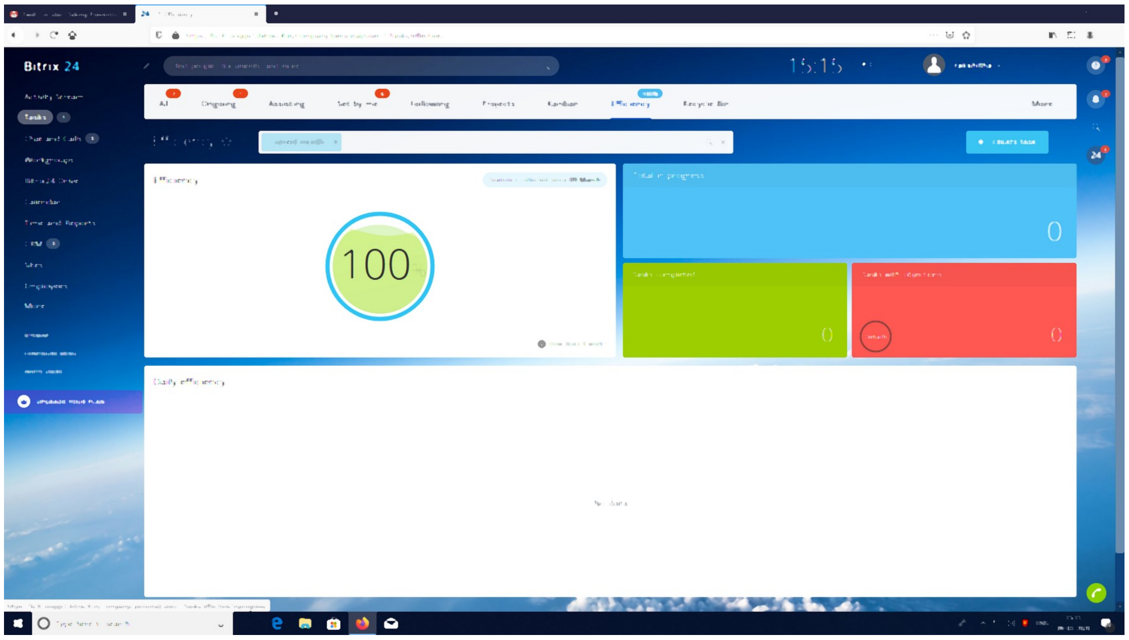
```
pts1 = np.float32([[156,165],[368,152],[128,387],[389,390]])
pts2 = np.float32([[0,0],[300,0],[0,300],[300,300]])
M = cv2.getPerspectiveTransform(pts1,pts2)
dst = cv2.warpPerspective(img2,M,(300,300))
plt.subplot(121),plt.imshow(img2),plt.title('Input')
plt.subplot(122),plt.imshow(dst),plt.title('Output')
plt.show()
```



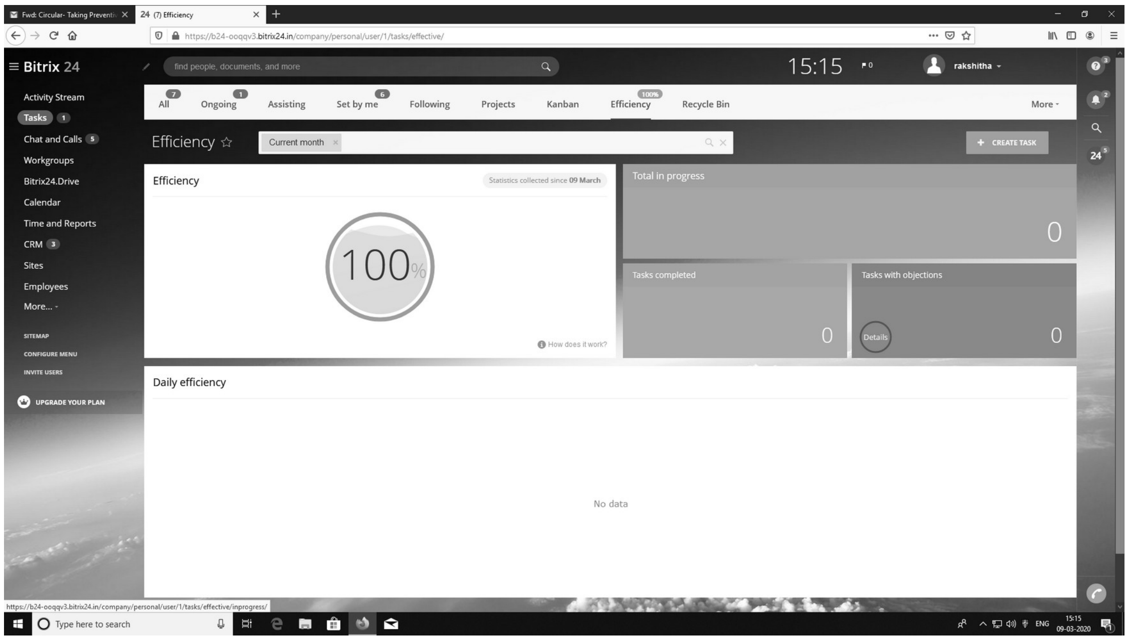
```
Gaussian = cv2.GaussianBlur(img1, (7, 7), 0)
cv2_imshow( Gaussian)
```



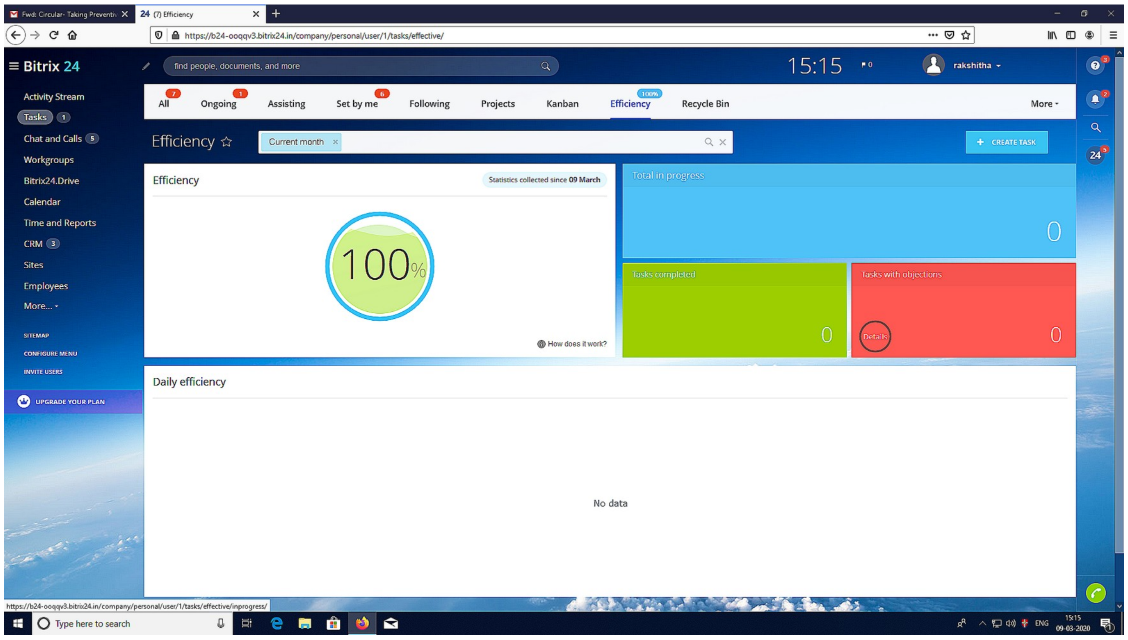
```
median = cv2.medianBlur(img1, 5)
cv2_imshow(median)
```



```
gray = cv2.cvtColor(img1, cv2.COLOR_BGR2GRAY)
cv2_imshow(gray)
```

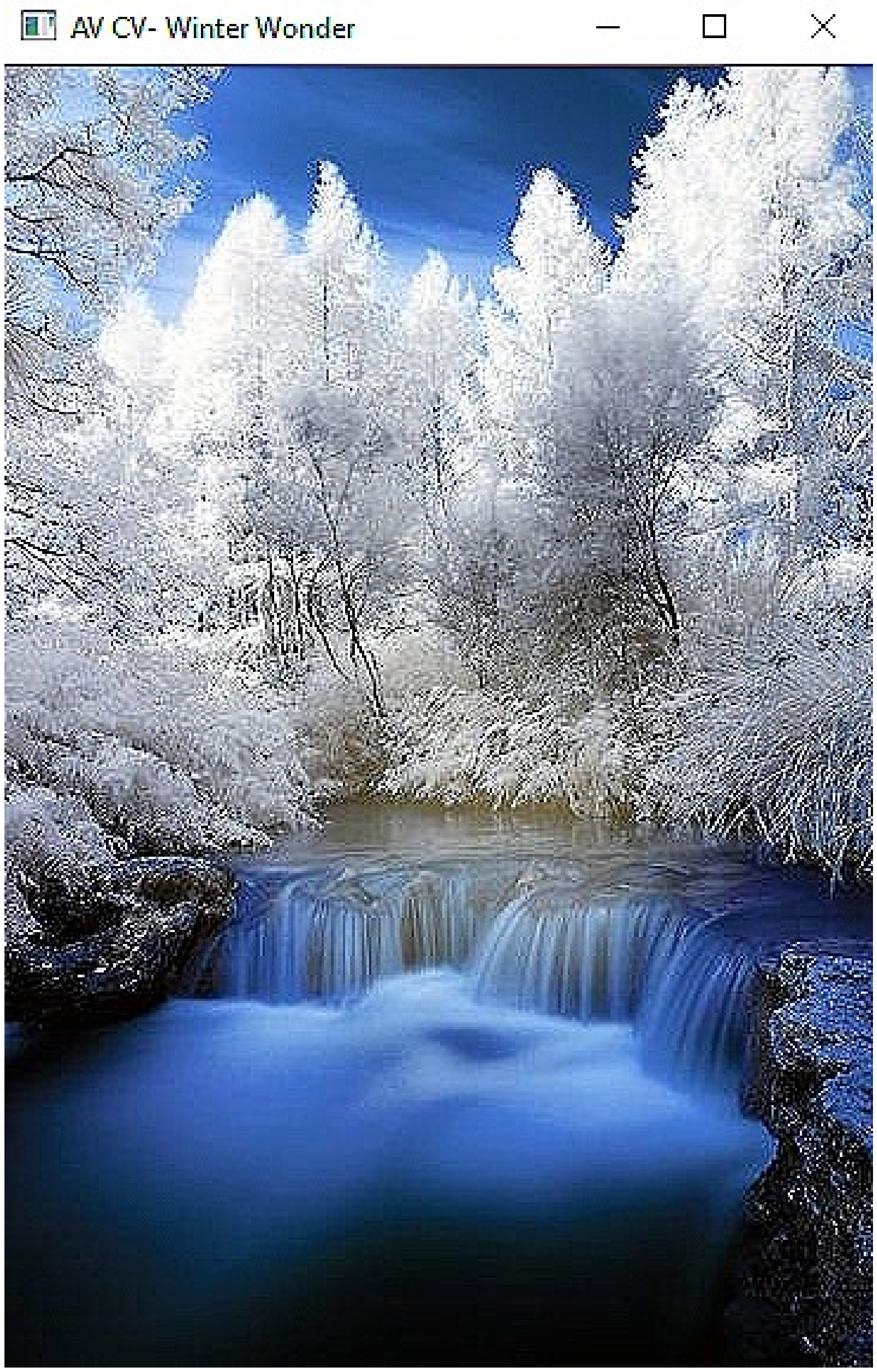


```
kernel = np.array([[0, -1, 0],
                   [-1, 5,-1],
                   [0, -1, 0]])
image_sharp = cv2.filter2D(src=img1, ddepth=-1, kernel=kernel)
cv2_imshow(image_sharp)
```



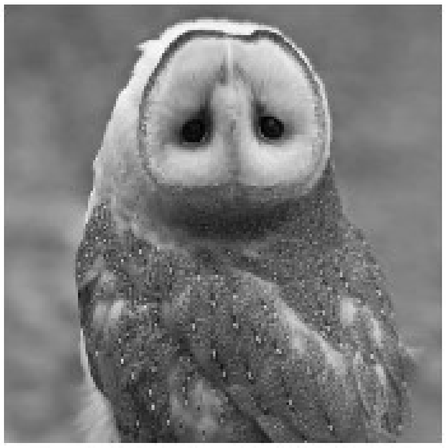
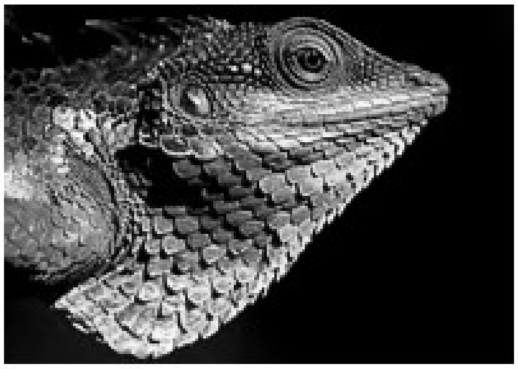
```
capimg=cv2.imread("/content/91190Capture.png")

kernel = np.array([[0, -1, 0],
                   [-1, 5,-1],
                   [0, -1, 0]])
image_sharp = cv2.filter2D(src=capimg, ddepth=-1, kernel=kernel)
cv2_imshow(image_sharp)
```



```
imga1=cv2.imread("/content/Screenshot-from-2022-07-28-16-15-43.png")
cv2_imshow(imga1)
```

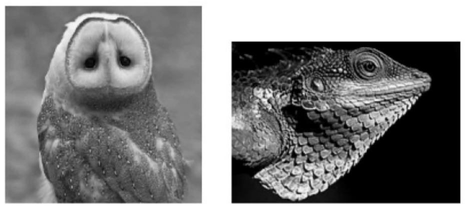
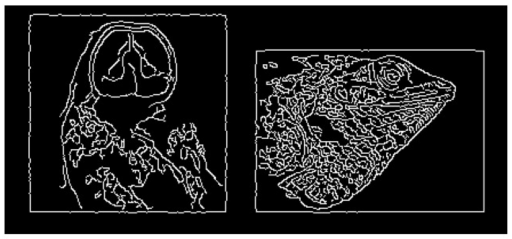
```
gray1=cv2.cvtColor(imga1,cv2.COLOR_BGR2GRAY)
cv2_imshow(gray1)
```

```
blurred = cv2.GaussianBlur(gray1, (5, 5), 0)
# Perform the canny operator
canny = cv2.Canny(blurred, 30, 150)

fig,ax =  plt.subplots(1,2,figsize=(18, 18))
ax[0].imshow(gray1,cmap='gray')
ax[1].imshow(canny,cmap='gray')
ax[0].axis('off')
ax[1].axis('off')
```

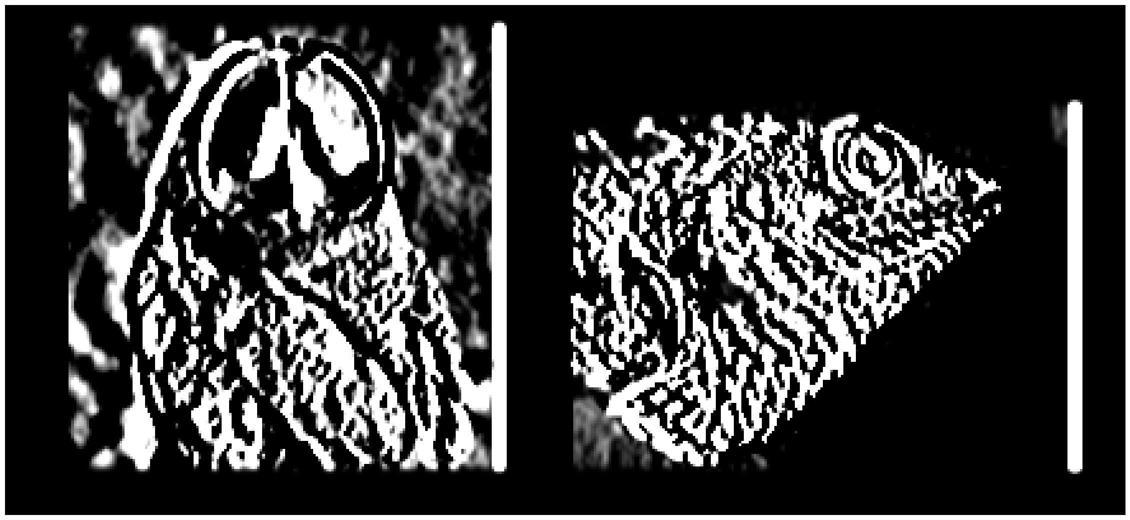
```
(-0.5, 439.5, 199.5, -0.5)
```

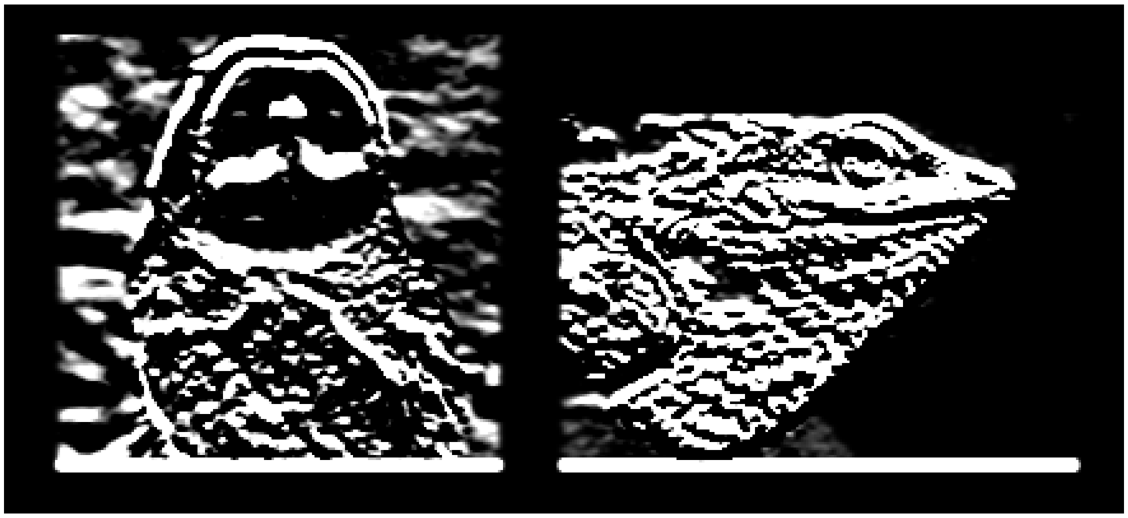
```
# Convert to graycsale
img_gray = cv2.cvtColor(imga1, cv2.COLOR_BGR2GRAY)
# Blur the image for better edge detection
img_blur = cv2.GaussianBlur(img_gray, (3,3), 0)

sobelx = cv2.Sobel(src=img_blur, ddepth=cv2.CV_64F, dx=1, dy=0,
ksize=5) # Sobel Edge Detection on the X axis
sobely = cv2.Sobel(src=img_blur, ddepth=cv2.CV_64F, dx=0, dy=1,
ksize=5) # Sobel Edge Detection on the Y axis
sobelxy = cv2.Sobel(src=img_blur, ddepth=cv2.CV_64F, dx=1, dy=1,
ksize=5)

cv2_imshow( sobelx);
```



```
cv2_imshow( sobely);
```



```
cv2_imshow( sobelxy);
```