TASK 3

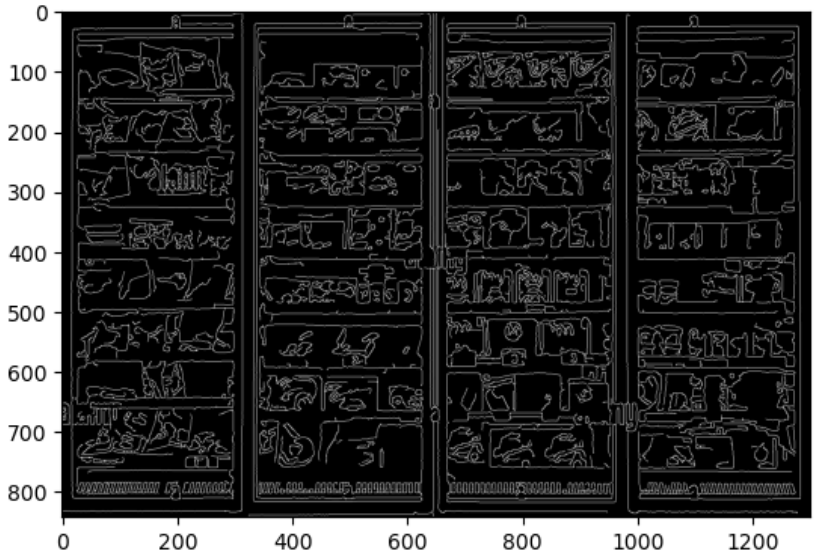
Objective : Count the number of items in the given freezer images.

For Refrigerator image 1

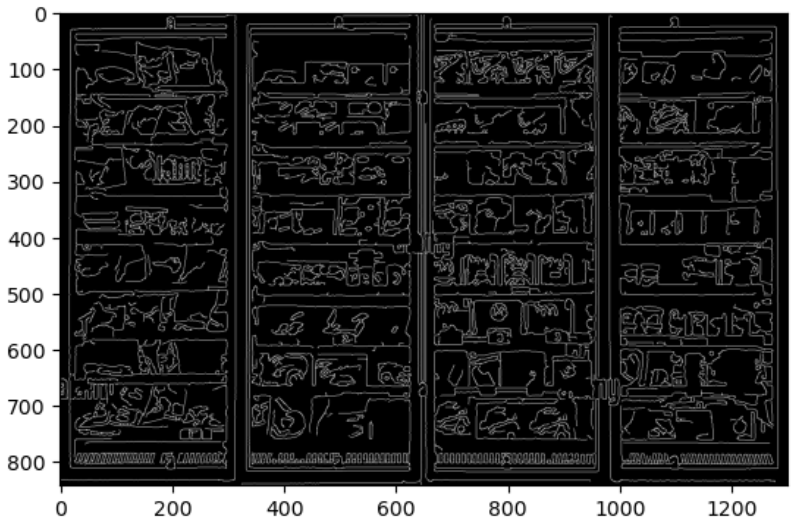
```
import cv2
import numpy as np
import matplotlib.pyplot as plt

image = cv2.imread('freezeer1.jpg')
gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
plt.imshow(gray, cmap='gray')
```


```
blur = cv2.GaussianBlur(gray, (11, 11), 0)
plt.imshow(blur, cmap='gray')
```

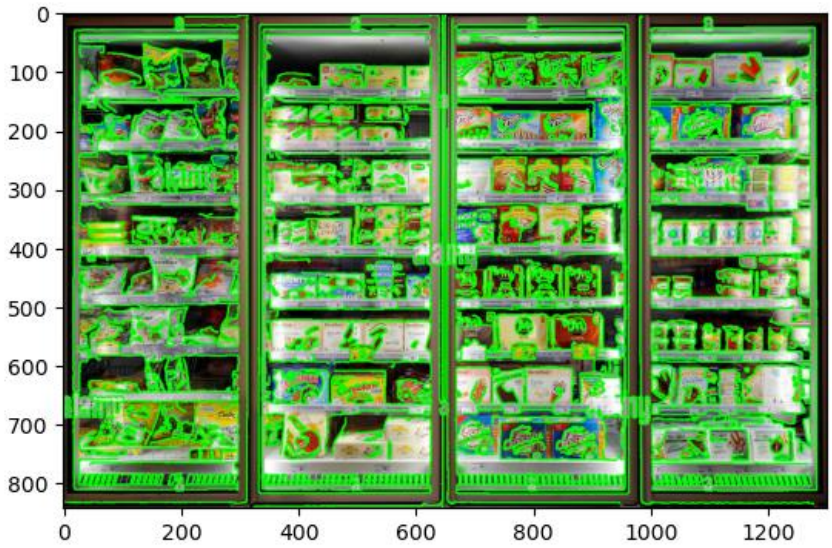

```
canny = cv2.Canny(blur, 30, 150, 3)
plt.imshow(canny, cmap='gray')
```




```
dilated = cv2.dilate(canny, (1, 1), iterations=0)
plt.imshow(dilated, cmap='gray')
```




```
(cnt, hierarchy) = cv2.findContours(
                dilated.copy(), cv2.RETR_EXTERNAL, cv2.CHAIN_APPROX_NONE)
rgb = cv2.cvtColor(image, cv2.COLOR_BGR2RGB)
cv2.drawContours(rgb, cnt, -1, (0, 255, 0), 2)
plt.imshow(rgb)
```



print("products in the image : ", len(cnt))

FINAL OUTPUT : products in the image : **1134**

For Refrigerator image 2

FINAL OUTPUT : products in the image : **630**

TASK 2

Objective : Read the text as shown in the given image, make sure the code is generalize and work on all the given images in task2 Folder .

```
from PIL import Image
filename = "C:\\Users\\heman\\Downloads\\Mazza1.png"
with Image.open(filename) as img:
   img.load()

type(img)
isinstance(img,Image.Image)
#img.show()
img.format
img.size
img.mode

cropped_img=img.crop((230, 500, 935, 740))
cropped_img.size
#cropped_img.show()
low_res_img = cropped_img.resize((cropped_img.width // 4, cropped_img.height // 4))
low_res_img.show()
low_res_img = cropped_img.reduce(4)
```

TESTING ON RANDOM IMAGES :

Testing on image 1

Testing on image 5