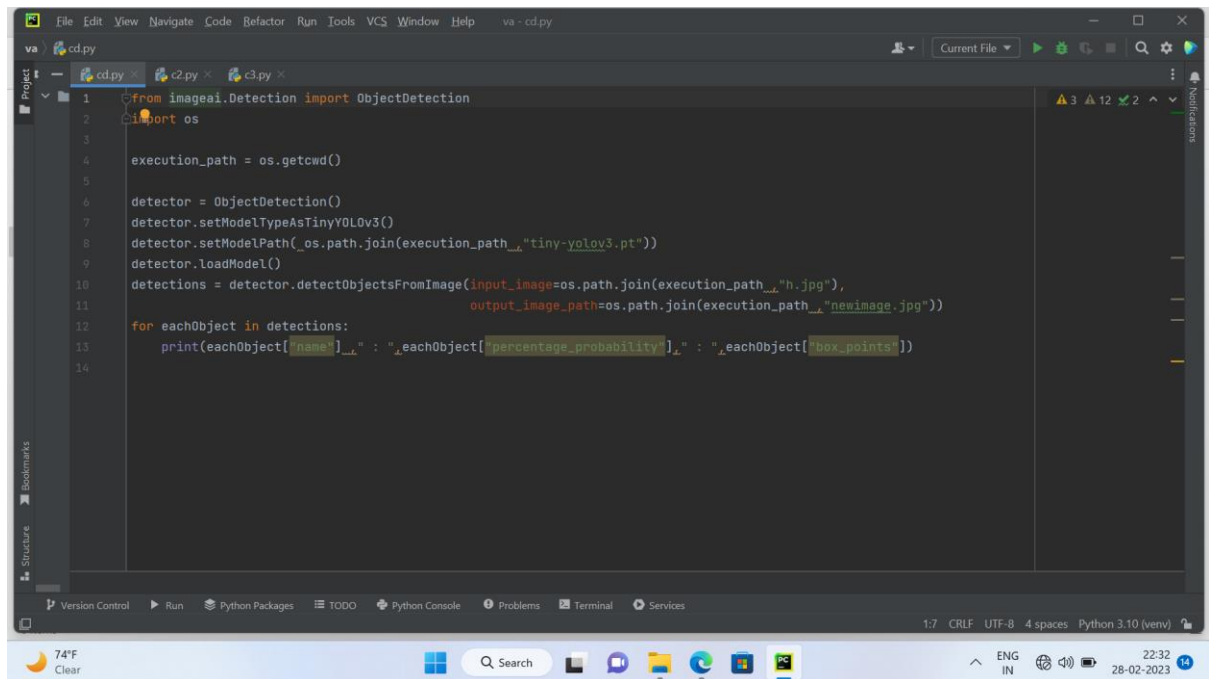


Program1



```
1 from imageai.Detection import ObjectDetection
2 import os
3
4 execution_path = os.getcwd()
5
6 detector = ObjectDetection()
7 detector.setModelTypeAsTinyYOLOv3()
8 detector.setModelPath(os.path.join(execution_path, "tiny-yolov3.pt"))
9 detector.loadModel()
10 detections = detector.detectObjectsFromImage(input_image=os.path.join(execution_path, "h.jpg"),
11                                           output_image_path=os.path.join(execution_path, "newimage.jpg"))
12
13 for eachObject in detections:
14     print(eachObject["name"] , " : " , eachObject["percentage_probability"] , " : " , eachObject["box_points"])
```

Code :-

```
from imageai.Detection import ObjectDetection
```

```
import os
```

```
execution_path = os.getcwd()
```

```
detector = ObjectDetection()
```

```
detector.setModelTypeAsTinyYOLOv3()
```

```
detector.setModelPath( os.path.join(execution_path , "tiny-yolov3.pt"))
```

```
detector.loadModel()
```

```
detections = detector.detectObjectsFromImage(input_image=os.path.join(execution_path , "h.jpg"),
```

```
        output_image_path=os.path.join(execution_path , "newimage.jpg"))
```

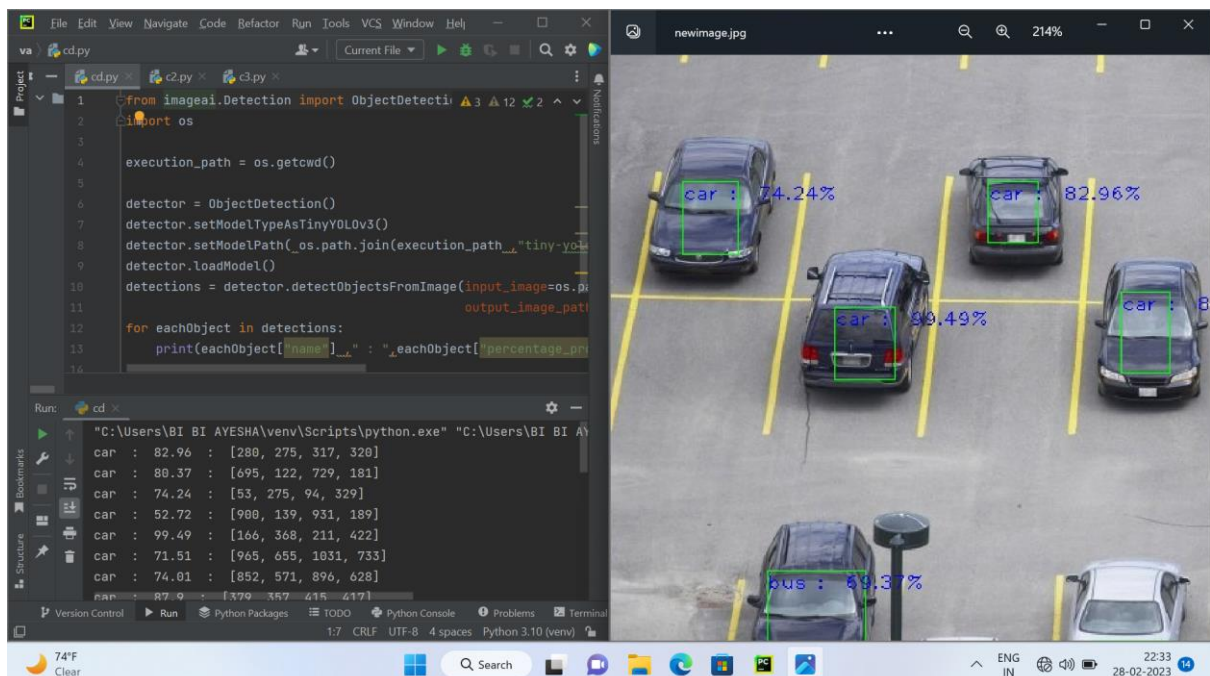
```
for eachObject in detections:
```

```
    print(eachObject["name"] , " : " , eachObject["percentage_probability"] , " : " , eachObject["box_points"])
```

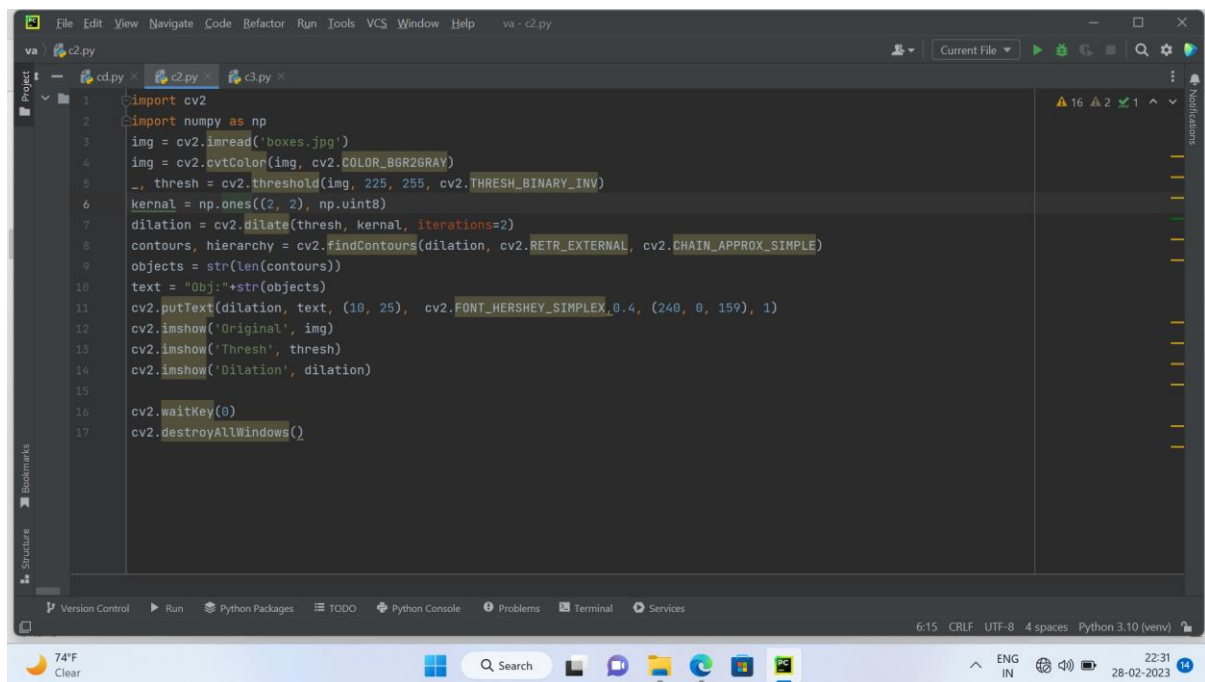
Input image :-



Output:-



Program 2

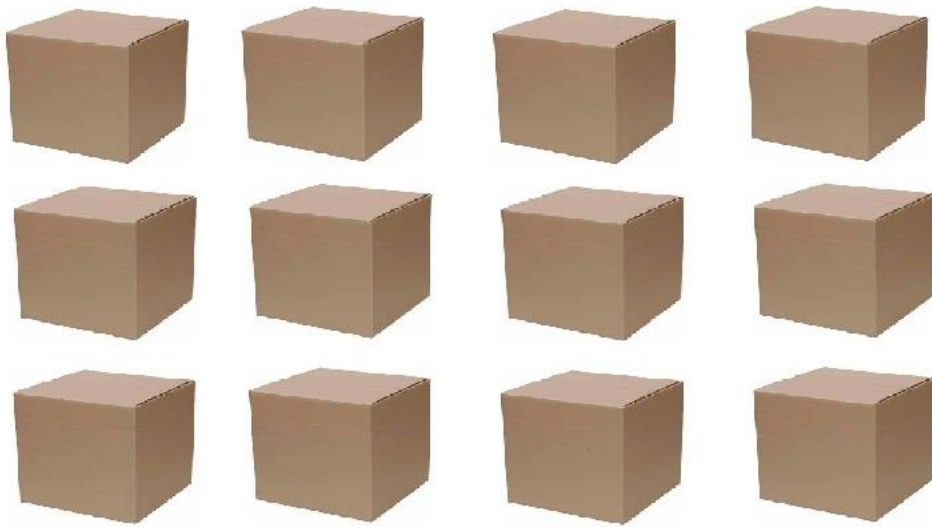


Code :-

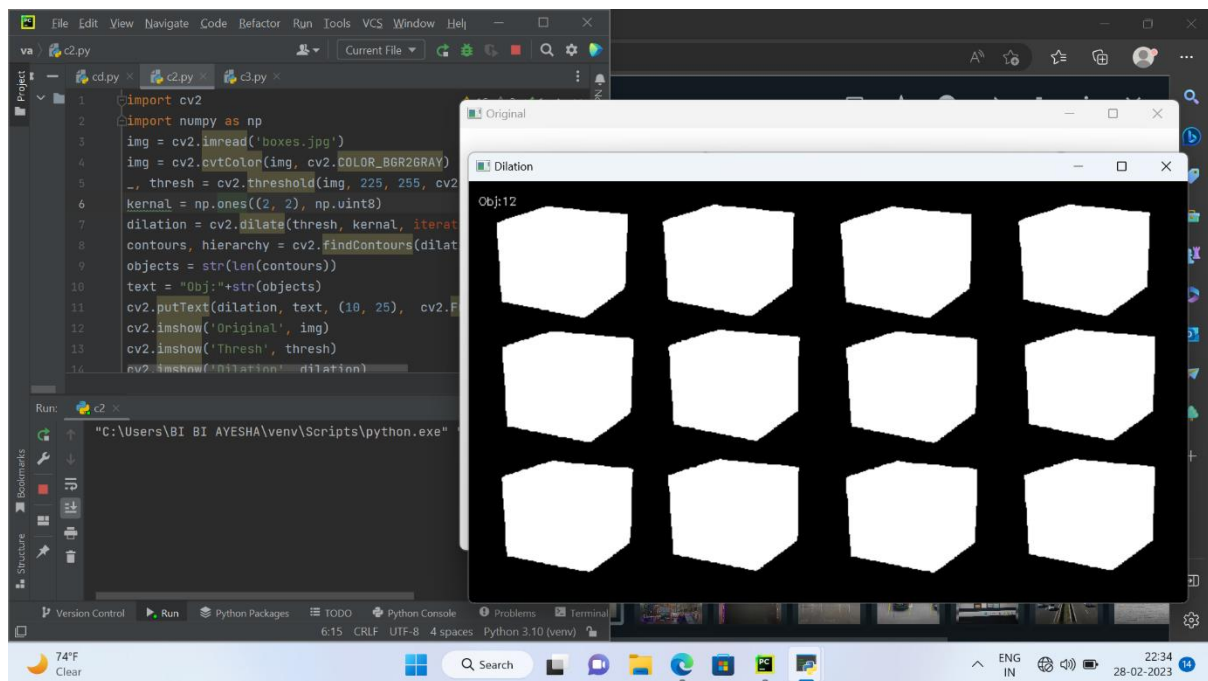
```
import cv2
import numpy as np
img = cv2.imread('boxes.jpg')
img = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)
_, thresh = cv2.threshold(img, 225, 255, cv2.THRESH_BINARY_INV)
kernal = np.ones((2, 2), np.uint8)
dilation = cv2.dilate(thresh, kernal, iterations=2)
contours, hierarchy = cv2.findContours(dilation, cv2.RETR_EXTERNAL, cv2.CHAIN_APPROX_SIMPLE)
objects = str(len(contours))
text = "Obj:" + str(objects)
cv2.putText(dilation, text, (10, 25), cv2.FONT_HERSHEY_SIMPLEX, 0.4, (240, 0, 159), 1)
cv2.imshow('Original', img)
cv2.imshow('Thresh', thresh)
cv2.imshow('Dilation', dilation)

cv2.waitKey(0)
cv2.destroyAllWindows()
```

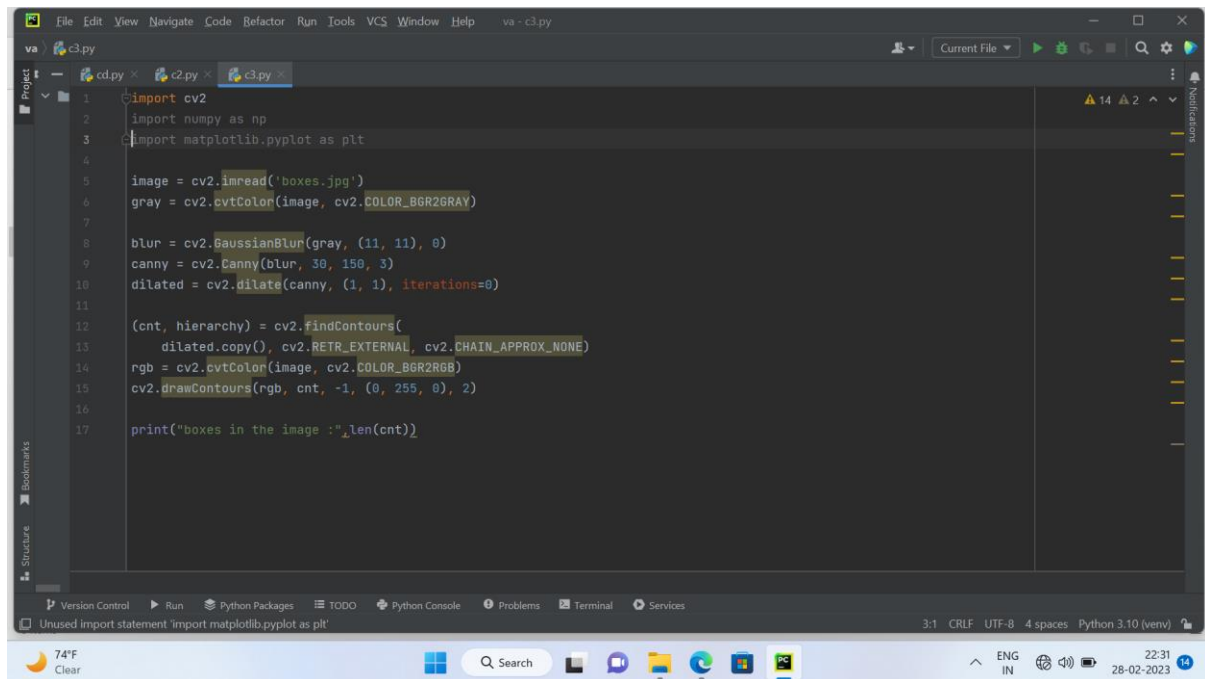
Input image :-



Output:-



Program 3



Code:-

```
import cv2
```

```
import numpy as np
```

```
import matplotlib.pyplot as plt
```

```
image = cv2.imread('boxes.jpg')
```

```
gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
```

```
blur = cv2.GaussianBlur(gray, (11, 11), 0)
```

```
canny = cv2.Canny(blur, 30, 150, 3)
```

```
dilated = cv2.dilate(canny, (1, 1), iterations=0)
```

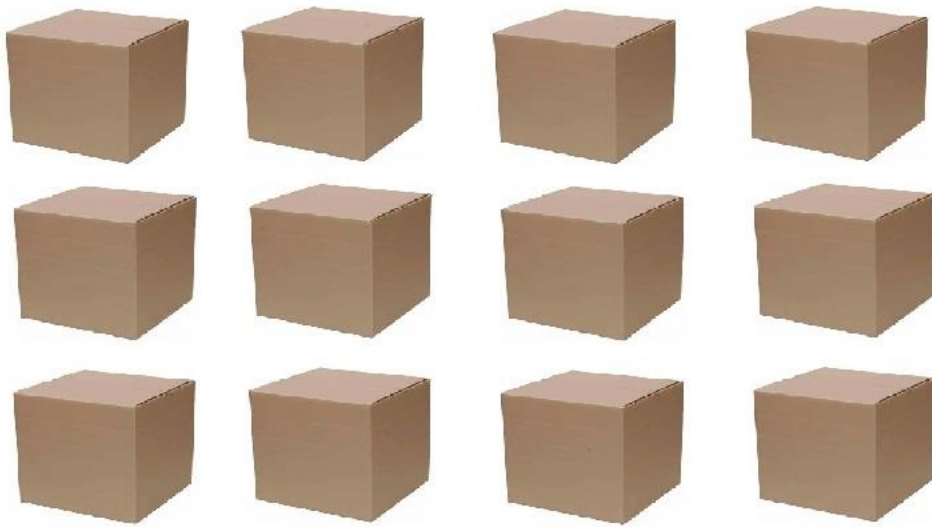
```
(cnt, hierarchy) = cv2.findContours(dilated.copy(), cv2.RETR_EXTERNAL, cv2.CHAIN_APPROX_NONE)
```

```
rgb = cv2.cvtColor(image, cv2.COLOR_BGR2RGB)
```

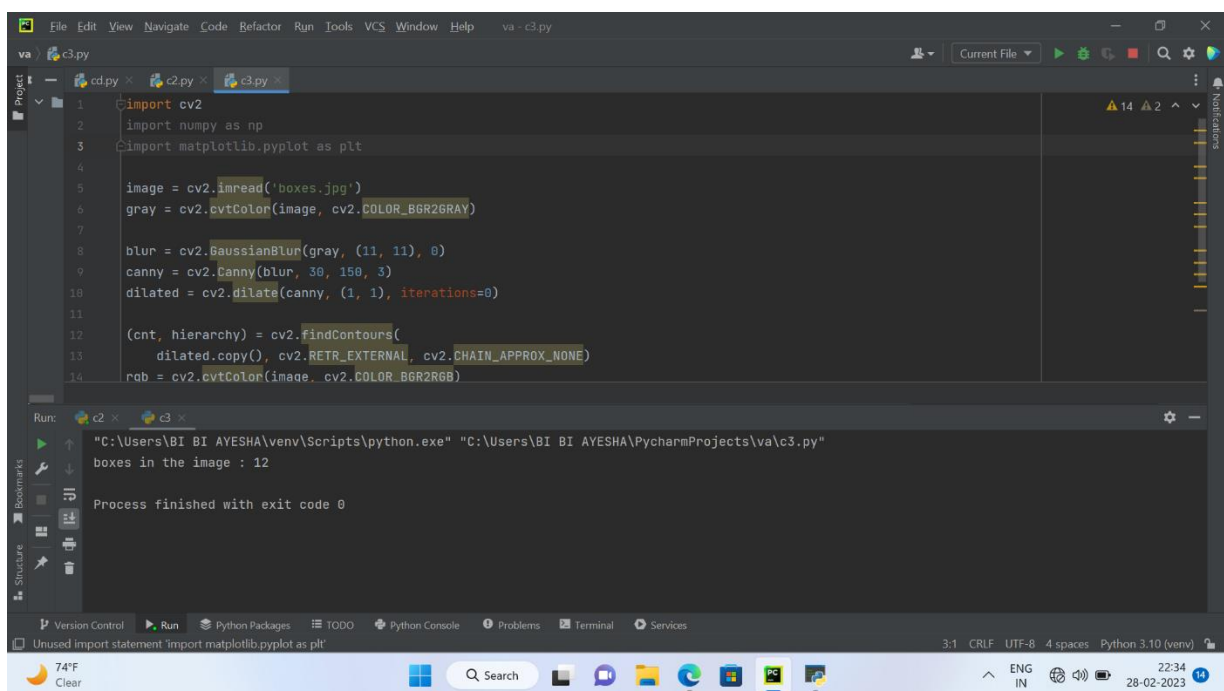
```
cv2.drawContours(rgb, cnt, -1, (0, 255, 0), 2)
```

```
print("boxes in the image :", len(cnt))
```


Input image :-



Output:-



```
1 import cv2
2 import numpy as np
3 import matplotlib.pyplot as plt
4
5 image = cv2.imread('boxes.jpg')
6 gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
7
8 blur = cv2.GaussianBlur(gray, (11, 11), 0)
9 canny = cv2.Canny(blur, 30, 150, 3)
10 dilated = cv2.dilate(canny, (1, 1), iterations=0)
11
12 (cnt, hierarchy) = cv2.findContours(
13     dilated.copy(), cv2.RETR_EXTERNAL, cv2.CHAIN_APPROX_NONE)
14 rgb = cv2.cvtColor(image, cv2.COLOR_BGR2RGB)
```

Run: "C:\Users\BI BI AYESHA\venv\Scripts\python.exe" "C:\Users\BI BI AYESHA\PycharmProjects\va\c3.py"

boxes in the image : 12

Process finished with exit code 0

Unused import statement 'import matplotlib.pyplot as plt'