

Python:

```
C:\Windows\system32\cmd.exe
----- 53.0/53.0 kB 910.0 kB/s eta 0:00:00
Downloading Pillow-10.1.0-cp311-cp311-win_amd64.whl (2.6 MB)
----- 2.6/2.6 MB 6.7 MB/s eta 0:00:00
Downloading pyparsing-3.1.1-py3-none-any.whl (103 kB)
----- 103.1/103.1 kB 844.5 kB/s eta 0:00:00
Installing collected packages: six, pyparsing, pillow, packaging, kiwisolver, fonttools, cyclor, contourpy, python-dateutil, Matplotlib
Successfully installed Matplotlib-3.8.2 contourpy-1.2.0 cyclor-0.12.1 fonttools-4.45.0 kiwisolver-1.4.5 packaging-23.2 pillow-10.1.0 pyparsing-3.1.1 python-dateutil-2.8.2 six-1.16.0

C:\Users\leolp>pip list
Package            Version
-----
contourpy          1.2.0
cyclor             0.12.1
fonttools          4.45.0
kiwisolver         1.4.5
matplotlib         3.8.2
numpy             1.26.2
packaging          23.2
Pillow            10.1.0
pip               23.3.1
pyparsing         3.1.1
python-dateutil   2.8.2
scipy             1.11.4
setuptools        65.5.0
six              1.16.0

C:\Users\leolp>
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OpenCV:

```
C:\Windows\system32\cmd.exe

C:\Users\leolp>pip install opencv-python
Collecting opencv-python
  Downloading opencv_python-4.8.1.78-cp37-abi3-win_amd64.whl.metadata (20 kB)
Requirement already satisfied: numpy>=1.21.2 in c:\users\leolp\appdata\local\programs\python\python311\lib\site-packages (from opencv-python) (1.26.2)
Downloading opencv_python-4.8.1.78-cp37-abi3-win_amd64.whl (38.1 MB)
----- 38.1/38.1 MB 5.9 MB/s eta 0:00:00
Installing collected packages: opencv-python
Successfully installed opencv-python-4.8.1.78

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Código en el IDE SublimeText:

```
D:\OpenCV\CannyCoins.py - Sublime Text (UNREGISTERED)
File Edit Selection Find View Goto Tools Project Preferences Help

CannyCoins.py
1 import numpy as np
2 import cv2
3
4 # Cargamos la imagen
5 original = cv2.imread("D:/OpenCV/monedas.jpg")
6 cv2.imshow("original", original)
7
8 # Convertimos a escala de grises
9 gris = cv2.cvtColor(original, cv2.COLOR_BGR2GRAY)
10
11 # Aplicar suavizado Gaussiano
12 gauss = cv2.GaussianBlur(gris, (5,5), 0)
13
14 cv2.imshow("suavizado", gauss)
15 cv2.imwrite("suavizado.jpg", gauss)
16 # Detectamos los bordes con Canny
17 canny = cv2.Canny(gauss, 50, 150)
18
19 cv2.imshow("canny", canny)
20 cv2.imwrite("canny.jpg", canny)
21 # Buscamos los contornos
22 (contornos, _) = cv2.findContours(canny.copy(), cv2.RETR_EXTERNAL, cv2.CHAIN_APPROX_SIMPLE)
23
24 # Mostramos el número de monedas por consola
25 print("He encontrado {} objetos".format(len(contornos)))
26
27 cv2.drawContours(original, contornos, -1, (0,0,255), 2)
28 cv2.imshow("contornos", original)
29 cv2.imwrite("contornos.jpg", original)
30 cv2.waitKey(0)
31 cv2.destroyAllWindows()
```

Conteo de Objetos:

He encontrado 1081 objetos

Line 5, Column 47

Tab Size: 4

Python

Imágenes Procesadas:



