# Digital Image Processing

**Assignment 1**

| **Name** | **Reg. No** |
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|  |  |
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## Task 1:

Cropping an image to 256 by 256

Code:

import cv2 as cv

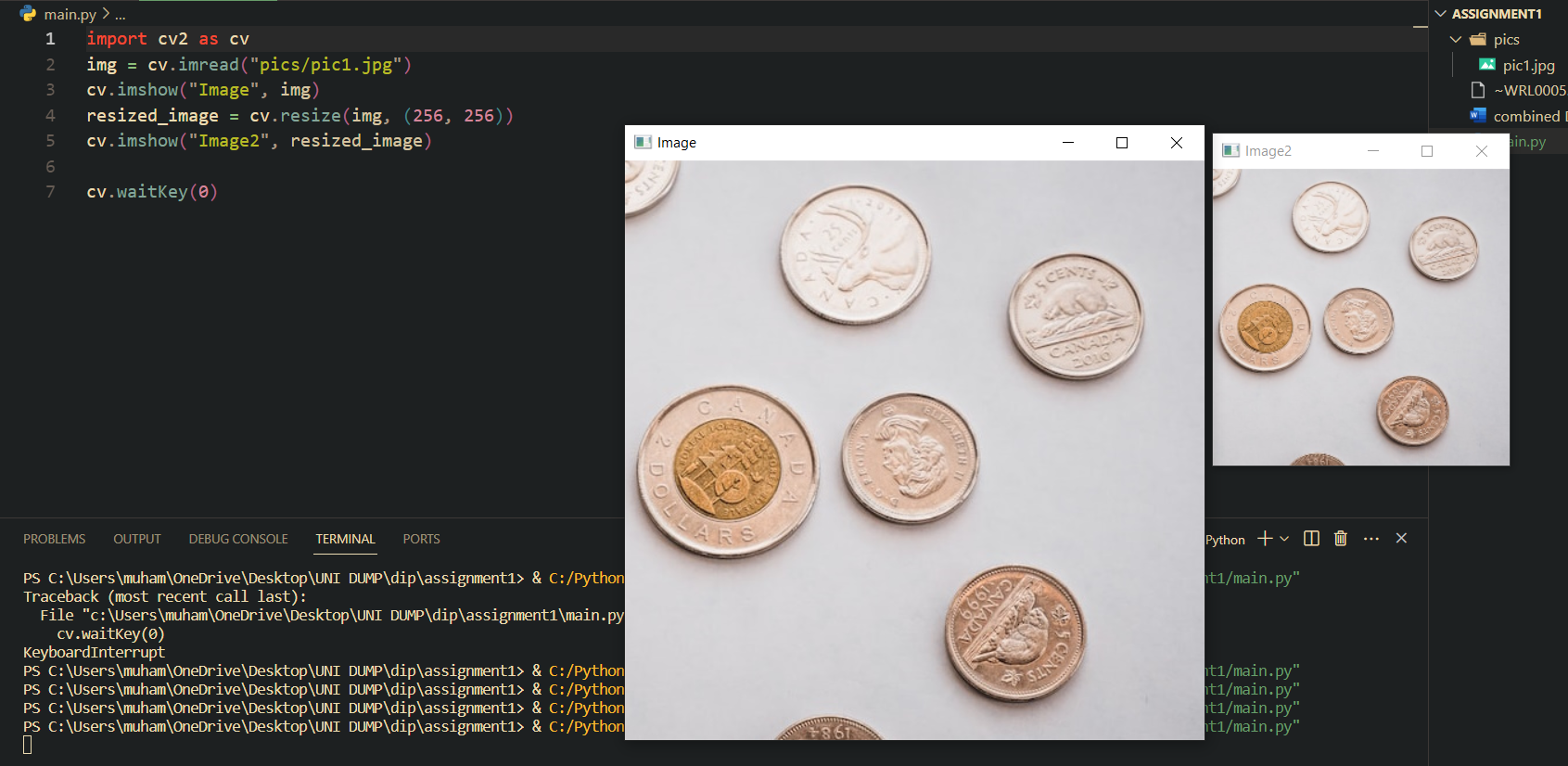
img = cv.imread("pics/pic1.jpg")

cv.imshow("Image", img)

resized\_image = cv.resize(img, (256, 256))

cv.imshow("Image2", resized\_image)

cv.waitKey(0)



Task 2:

Code:

import cv2 as cv

img = cv.imread("pics/pic1.jpg")

cv.imshow("Image", img)

resized\_image = cv.resize(img, (256, 256))

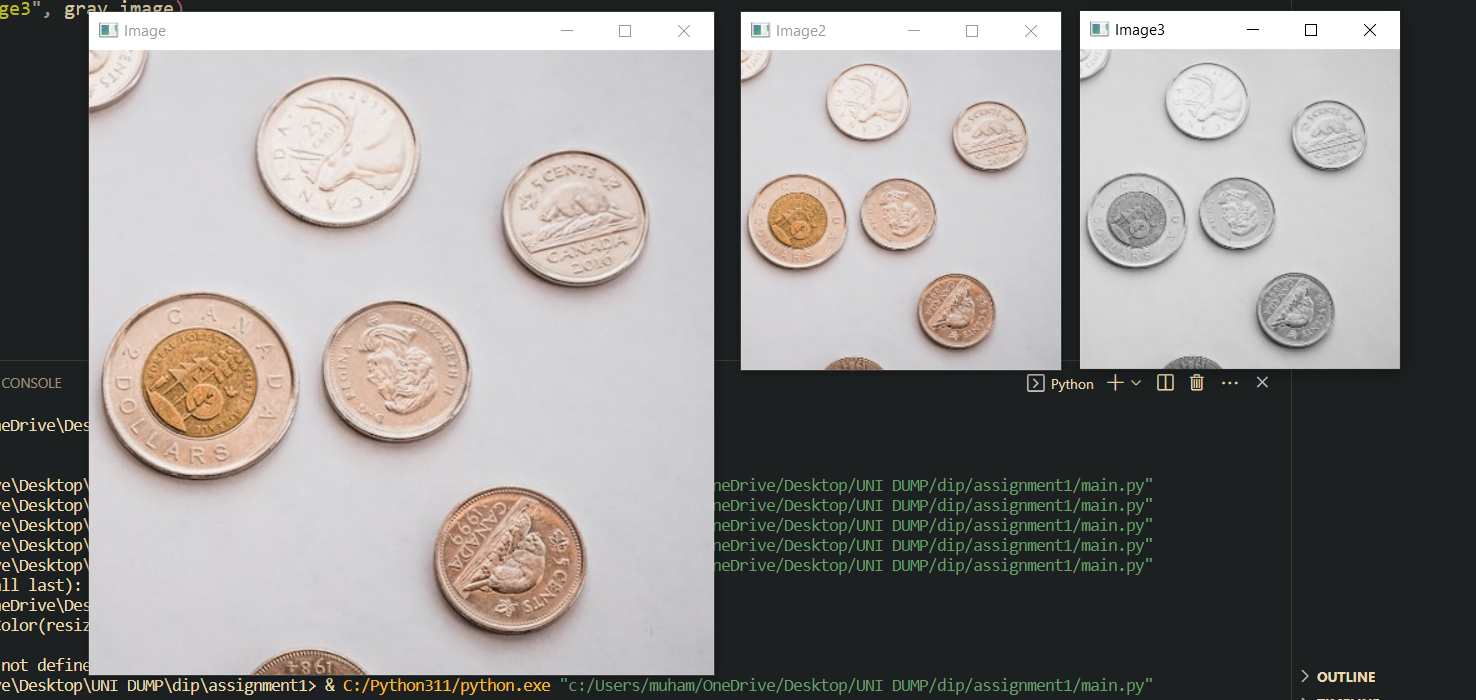
cv.imshow("Image2", resized\_image)

gray\_image = cv.cvtColor(resized\_image, cv.**COLOR\_BGR2GRAY**)

cv.imshow("Image3", gray\_image)

cv.waitKey(0)

Output:



As can be see now the resize image is displayed in grey scale

Task 3:

Code:

import cv2 as cv

img = cv.imread("pics/pic1.jpg")

cv.imshow("Image", img)

resized\_image = cv.resize(img, (256, 256))

cv.imshow("Image2", resized\_image)

gray\_image = cv.cvtColor(resized\_image, cv.**COLOR\_BGR2GRAY**)

cv.imshow("Image3", gray\_image)

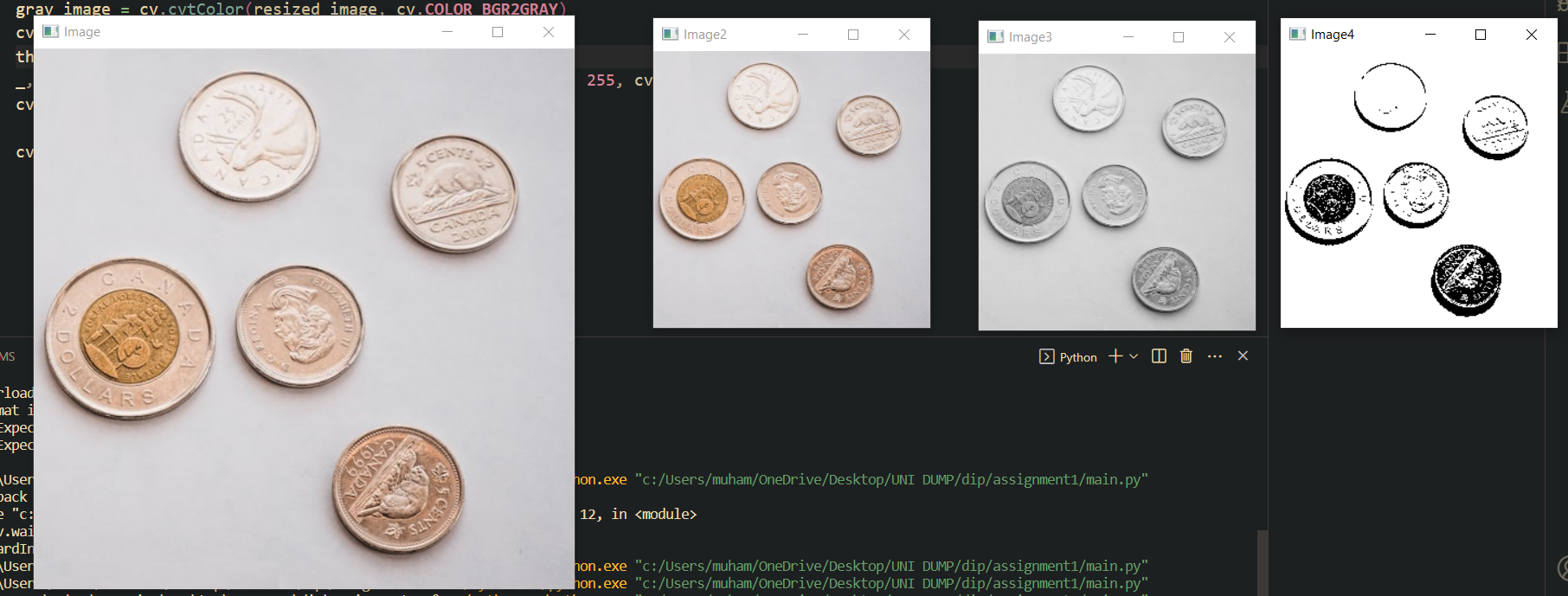
threshold\_value = 170

\_, binary\_image = cv.threshold(gray\_image, threshold\_value, 255, cv.**THRESH\_BINARY**)

cv.imshow("Image4", binary\_image)

cv.waitKey(0)

Output:



As can be seen now we are getting a binary image based on a specific threshold value which for this we have picked as 170.

Task 4:

Code:

blur\_image = cv.GaussianBlur(gray\_image, (5,5), 0)

canny\_image = cv.Canny(blur\_image, 30, 200, 3)

dilate\_image = cv.dilate(canny\_image, (5,5), *iterations*=5)

contours, \_ = cv.findContours(dilate\_image, cv.RETR\_EXTERNAL, cv.CHAIN\_APPROX\_SIMPLE)

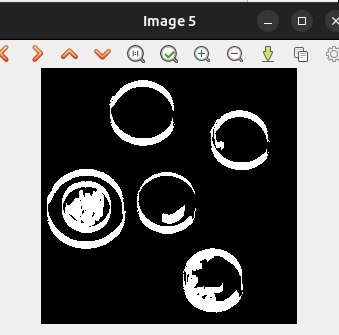
cv.drawContours(dilate\_image, contours, -1, (0,0,255), 2)

print(f"Number of coins: {len(contours)}")

cv.imshow("Image 5",dilate\_image)

Output:





As we can see from the screenshot above, the contours around the image show us the number of coins in the photo.