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Assignment-1

Code -

```
from google.colab import files
uploaded = files.upload()
img = uploaded['pens.jpg']
from IPython.display import Image, display
image_path = "pens.jpg"
display(Image(filename=image_path))
```

Segmentation -

```
import cv2
import numpy as np
from PIL import Image
image_file = list(uploaded.keys())[0]
img = Image.open(image_file)
img_np = np.array(img)
gray = cv2.cvtColor(img_np, cv2.COLOR_BGR2GRAY)
thresh, binary = cv2.threshold(gray, 127, 255, cv2.THRESH_BINARY)
contours, hierarchy = cv2.findContours(binary, cv2.RETR_EXTERNAL,
cv2.CHAIN_APPROX_SIMPLE)
for cnt in contours:
    length = cv2.arcLength(cnt, True)
    (x, y), (MA, ma), angle = cv2.fitEllipse(cnt)
    print("Length:", length)
    print("Orientation:", angle)
```

Result -

```
Length: 5944.225395679474 Orientation: 178.13194274902344
```