```python
import cv2 as cv
import numpy as np
import matplotlib.pyplot as plt
import os
image = cv.imread("cat1.jpg")
image = cv.cvtColor(image, cv.COLOR_BGR2GRAY)
plt.subplot(1,2,1)
plt.imshow(image, cmap='gray')
plt.title('Input Image')
plt.axis('off')
threshold=127
image.shape
for i in range(image.shape[0]):
    for j in range(image.shape[1]):
        if image[i][j] >= threshold:
            image[i][j]=255
        else:
            image[i][j]=0

plt.subplot(1,2,2)
plt.imshow(image, cmap='gray')
plt.title('Binary Image')
plt.axis('off')
plt.show()
```


Input Image

Binary Image