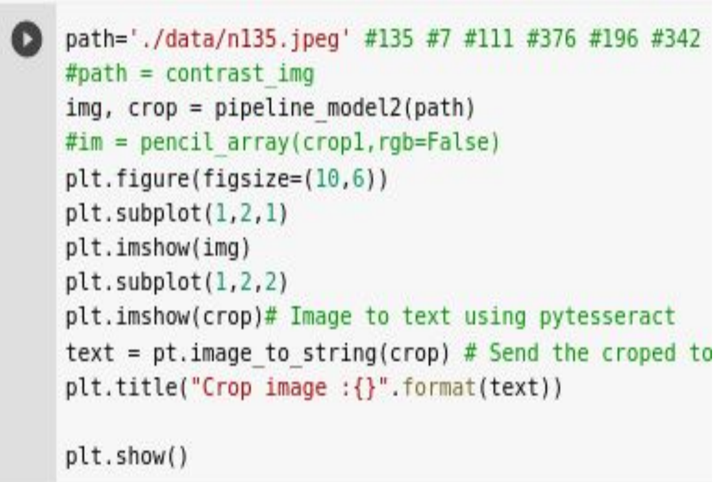
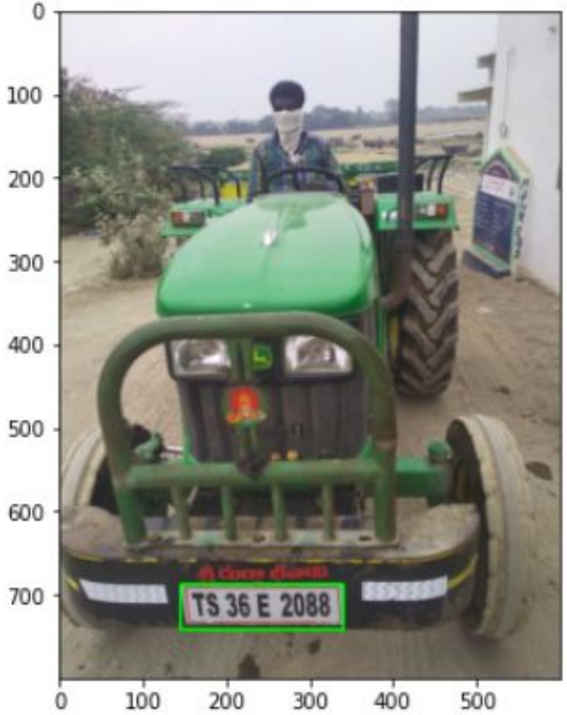
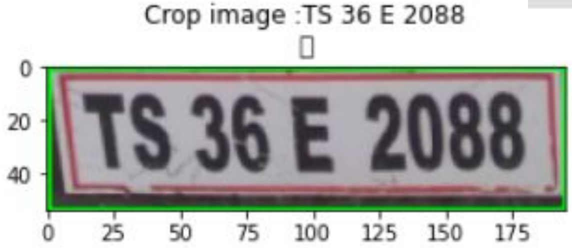
Preprocessing Steps

Number Plate

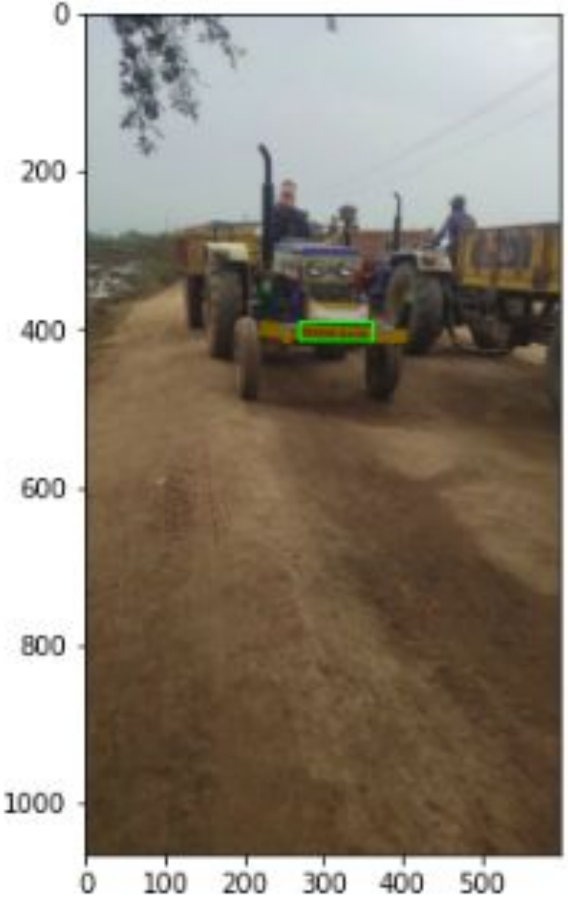


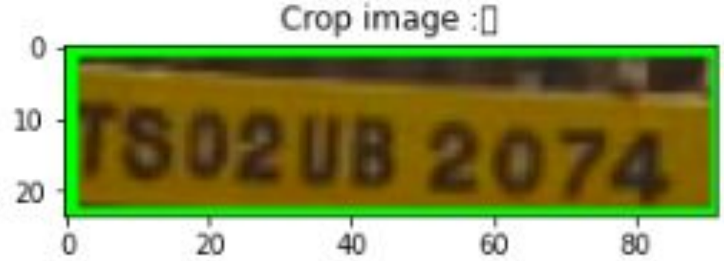
```
path='./data/n135.jpeg' #135 #7 #111 #376 #196 #342
#path = contrast_img
img, crop = pipeline_model2(path)
#im = pencil_array(crop1,rgb=False)
plt.figure(figsize=(10,6))
plt.subplot(1,2,1)
plt.imshow(img)
plt.subplot(1,2,2)
plt.imshow(crop)# Image to text using pytesseract
text = pt.image_to_string(crop) # Send the croped to
plt.title("Crop image :{}".format(text))

plt.show()
```

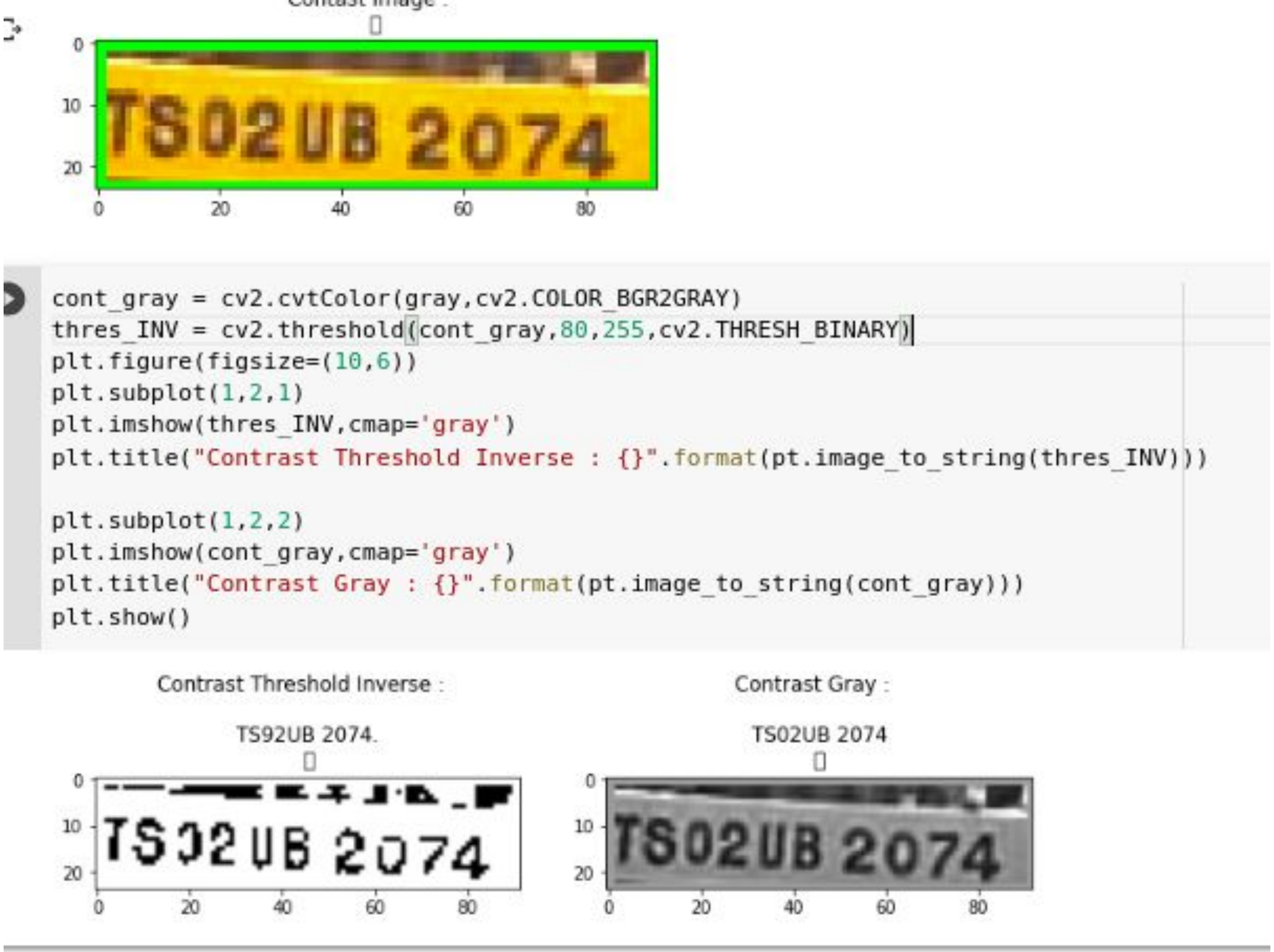



Crop image :TS 36 E 2088
□

2 Image


0
200
400
600
800
1000
0
100
200
300
400
500


Crop image :▯
TS02UB 2074
0
10
20
0
20
40
60
80



Contrast Image :

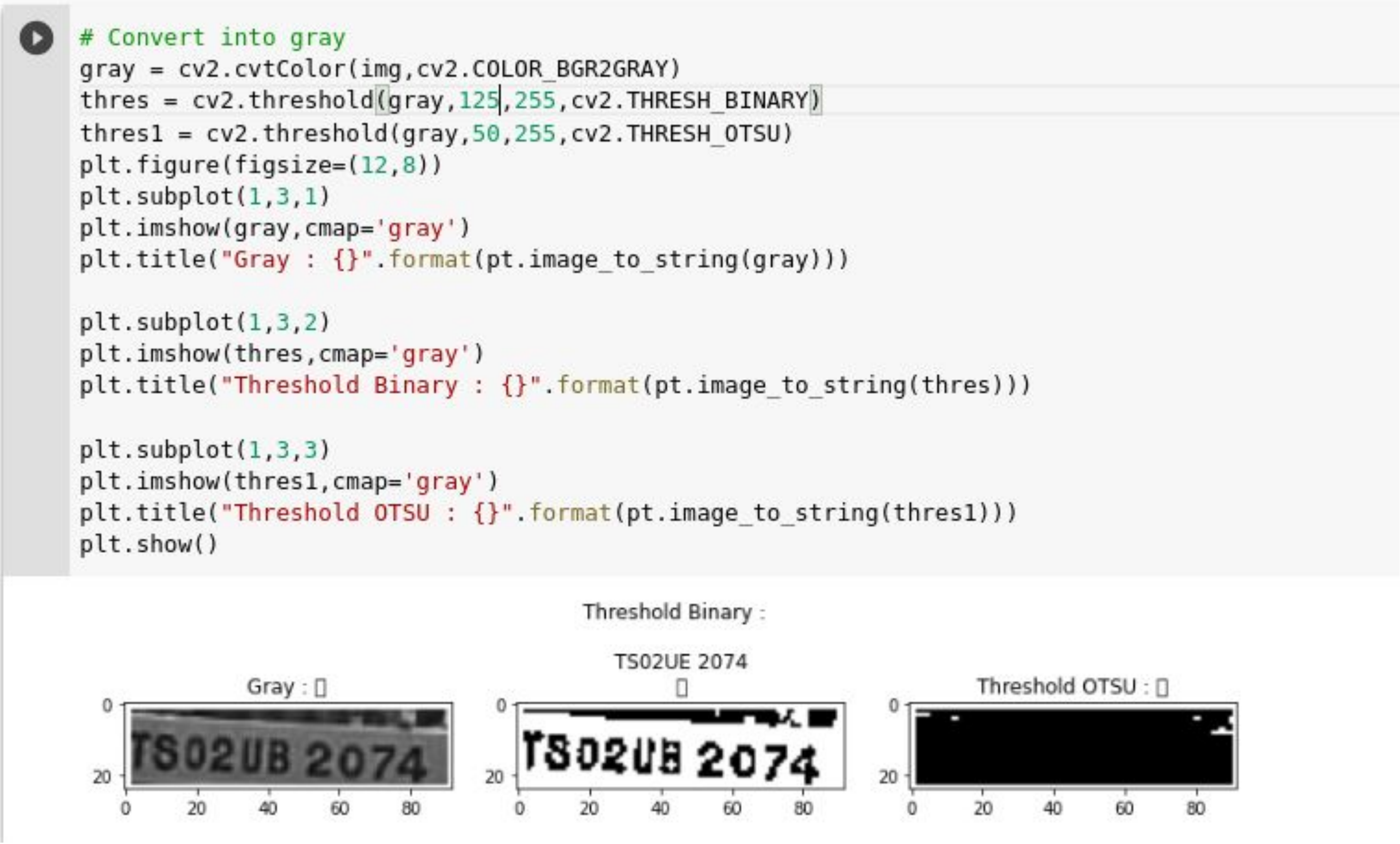
```
cont_gray = cv2.cvtColor(gray,cv2.COLOR_BGR2GRAY)
thres_INV = cv2.threshold(cont_gray,80,255,cv2.THRESH_BINARY)
plt.figure(figsize=(10,6))
plt.subplot(1,2,1)
plt.imshow(thres_INV,cmap='gray')
plt.title("Contrast Threshold Inverse : {}".format(pt.image_to_string(thres_INV)))

plt.subplot(1,2,2)
plt.imshow(cont_gray,cmap='gray')
plt.title("Contrast Gray : {}".format(pt.image_to_string(cont_gray)))
plt.show()
```

Contrast Threshold Inverse :

TS92UB 2074.

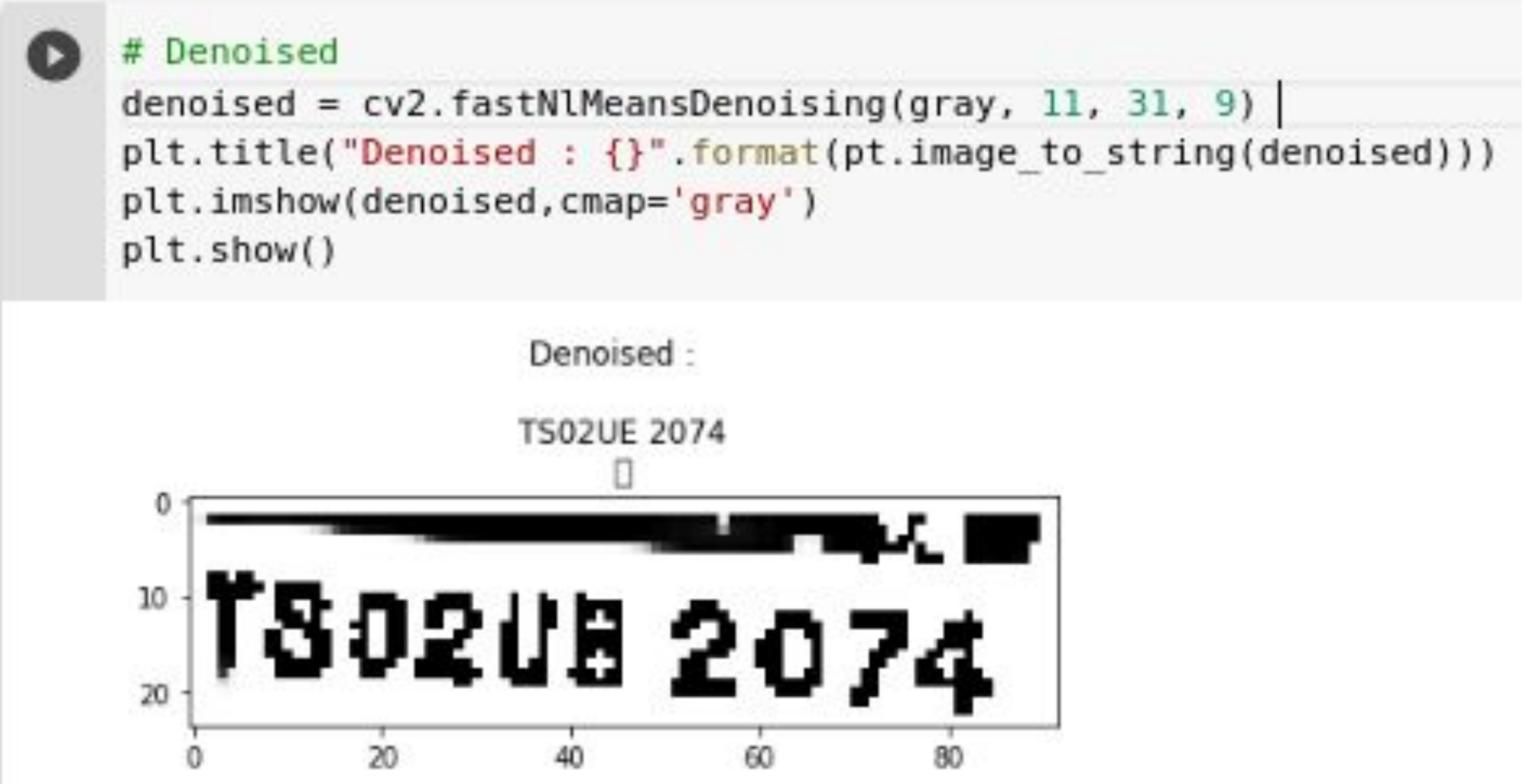
Contrast Gray :

TS02UB 2074



```
# Convert into gray
gray = cv2.cvtColor(img,cv2.COLOR_BGR2GRAY)
thres = cv2.threshold(gray,125,255,cv2.THRESH_BINARY)
thres1 = cv2.threshold(gray,50,255,cv2.THRESH_OTSU)
plt.figure(figsize=(12,8))
plt.subplot(1,3,1)
plt.imshow(gray,cmap='gray')
plt.title("Gray : {}".format(pt.image_to_string(gray)))

plt.subplot(1,3,2)
plt.imshow(thres,cmap='gray')
plt.title("Threshold Binary : {}".format(pt.image_to_string(thres)))

plt.subplot(1,3,3)
plt.imshow(thres1,cmap='gray')
plt.title("Threshold OTSU : {}".format(pt.image_to_string(thres1)))
plt.show()
```

```
Gray : □

Threshold Binary :

TS02UE 2074
□

Threshold OTSU : □
```



```python
# Denoised
denoised = cv2.fastNlMeansDenoising(gray, 11, 31, 9)
plt.title("Denoised : {}".format(pt.image_to_string(denoised)))
plt.imshow(denoised,cmap='gray')
plt.show()
```

```
Denoised :

TS02UE 2074
□
```