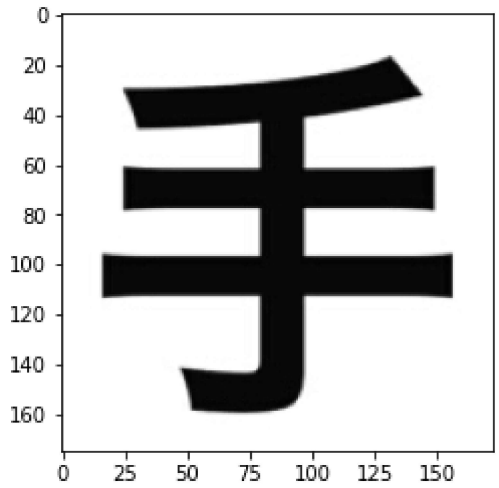
Importing Required Libraries

In [ ]:
```
import numpy as np
import cv2
import matplotlib.pyplot as plt
```

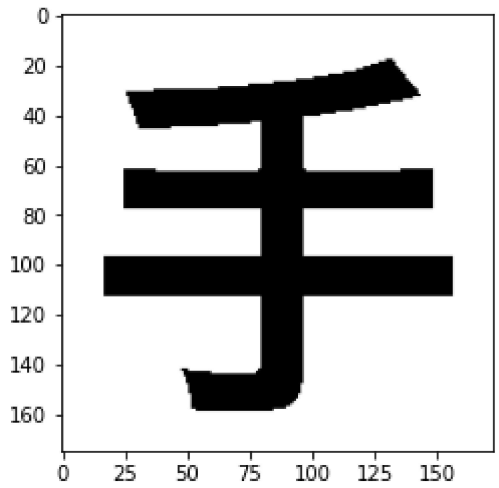
Input Image

In [ ]:
```
path = "../img/sample1.bmp"
img = cv2.imread(path, cv2.IMREAD_GRAYSCALE)
plt.imshow(img, "gray")
plt.show()
```



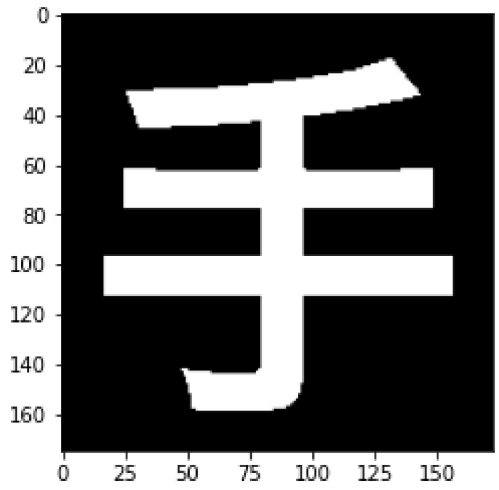
Thresholding input image to create a binary image

In [ ]:
```
t,img_t = cv2.threshold(img, 180, 255, cv2.THRESH_BINARY)
img_t = img_t//255
img_t = img_t.astype(np.uint8)
plt.imshow(img_t, "gray")
plt.show()
```



Inversing the binary image

In [ ]:
```
img_t = 1 - img_t
plt.imshow(img_t, "gray")
plt.show()
```



Defining kernel

In [ ]:
```
kernel = np.ones((3,3), np.uint8)
```

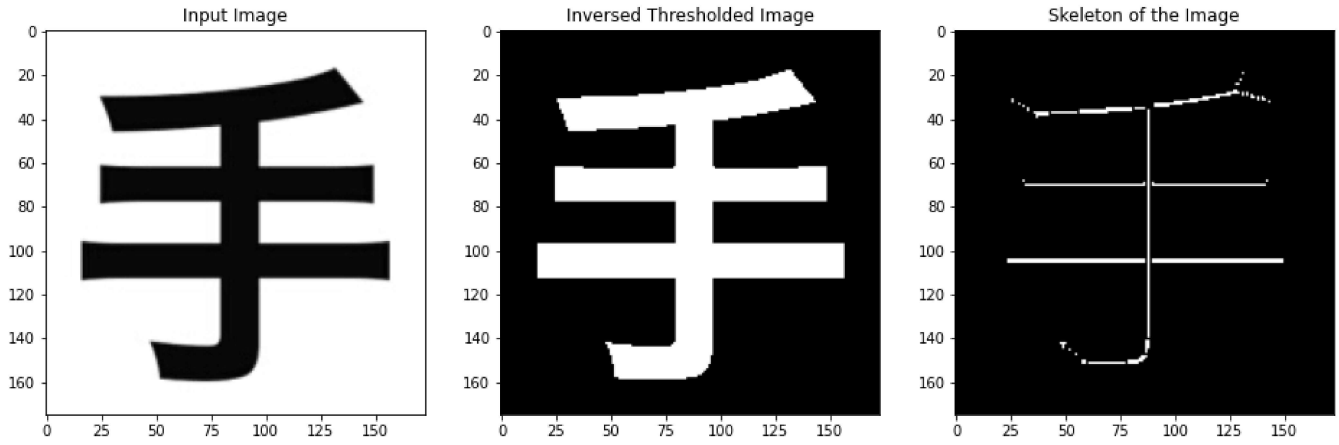
Operation to extract the skeleton of the image

In [ ]:
```
output = np.zeros((img.shape),np.uint8)
k = 0
while(True):
    X = cv2.erode(img_t, kernel, iterations=k).astype(np.uint8)
    summ = np.sum(X)

    if summ==0:
        break

    opening = cv2.morphologyEx(X, cv2.MORPH_OPEN, kernel).astype(np.uint8)
    Y = X - opening
    output = np.bitwise_or(output, Y)
    k+=1
```

Skeleton of the image

In [ ]:
```
figure, axis = plt.subplots(1,3, figsize=(16, 5))
axis[0].imshow(img, "gray")
axis[0].set_title("Input Image")

axis[1].imshow(img_t,"gray")
axis[1].set_title("Inversed Thresholded Image")
axis[2].imshow(output,"gray")
axis[2].set_title("Skeleton of the Image")
```

Out[ ]:
```
Text(0.5, 1.0, 'Skeleton of the Image')
```


Input Image
Inversed Thresholded Image
Skeleton of the Image

In [ ]: