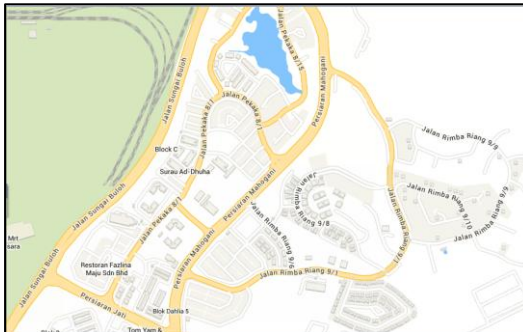


Practical 7 Exercise:

1. Segment different elements from the map images ("map.png") and visualize it in different windows such as lake, road, field, and housing area. Hint: you may refer to the following steps and distinguish each of them by using different range of RGB values.
 - a. Read "map.png" in python.
 - b. Insert the following code to extract the river. Understand the code and repeat the same process to extract road, field and housing area.

```
lower_river = np.array([240,185,120]) #lower boundary of RGB value  
upper_river = np.array([260,205,150]) #upper boundary of RGB value  
mask_river = cv2.inRange(img, lower_river, upper_river)  
river = cv2.bitwise_and(img, img, mask = mask_river)  
cv2.imshow("pic_river", river)
```



Original map



Lake



Road



Field



Housing area

Hint: You may check the RGB values for the map using the following website:

<http://imagecolorpicker.com/>

2. Implement an intrusion detection system which will continually loop the program and fire an alarm when Intrusion is True (you may use the sample video and declare an intrusion as "1" when intrusion is true).
3. Try this if you have a webcam. You may use "cap = cv2.VideoCapture(0)" to retrieve the live video from your webcam.

References:

<http://opencv.org/>

http://opencv-python-tutroals.readthedocs.io/en/latest/py_tutorials/py_tutorials.html