Exercise 1

> ECNU CS2018 怀尚禹 10185102221

Mission 1: Find the car

1. Basic structure
    - Use `cv2.imread()` to read an image
    - use `matplotlib.pyplot` (commonly imported as 'plt') to show image
2. Solve the linear system
    - Use `numpy.linalg.solve()`
3. Image cropping
    - For an image read from `cv2.imread()`, use `image[a:b, c:d]` to crop

Mission 2: Scale and gray

1. Image scale
    - Use `cv2.resize()` to scale
        - Notice that scale can sometimes be complex because you can scale by axis or scale by proportion.
        - Need to know height/width if you want to scale by proportion
2. Convert to gray version
    - Use `cv2.cvtColor(img, cv2.COLOR_RGB2GRAY)` to convert
        - When showing the image using `plt`, pay attention to `cmap`

```
plt.imshow(gray, cmap='gray')
```

        - `cmap` is a coloring scheme

Mission 3: Improve Jarvis

1. Select Region Of Interest

   `cv2.selectROI()` will start an UI conversation to let user crop image by clicking mouse. It returns 4 parameters which correspond to `image[a:b, c:d]` while cropping in part 3.

2. Use linear algebra (Inverse of determinant) to generate a new linear system.