In [ ]:

In [ ]:

Python, OpenCV, Numpy Basics

In [1]:
```
# Libraries you might need
import cv2
import numpy as np
from matplotlib import pyplot as plt
import os
```

In [ ]:
```
# Conditions
if cond :
    inst
else:
    inst

if cond1:
    inst
elif cond2:
    inst
else:
    inst
```

In [ ]:
```
# loops
for i in range(0, n):
    inst

for item in array:
    inst

for in range(n):
    inst

while cond:
    inst
```

In [ ]:
```
# opencv read image
color = 0 # gray
# color = 1 # rgb
image = cv2.imread(path, color)
```

In [ ]:
```
# get image dimensions
h, w = image.shape
# or
h = image.shape[0]
w = image.shape[1]
```

In [ ]:
```
# opencv draw circle
image_color = cv2.cvtColor(image, cv2.COLOR_GRAY2BGR) # switch from gray
cv2.circle(image_color, (y, x), size, (0, 0, 255), -1)
```

In [ ]:
```
# plt to show image
plt.imshow(image_color)
plt.title('')
plt.show()
```

In [ ]:
```
# numpy
tab = [] # empty array
np.where(tab==val)
np.array() # to create numpy array
np.min(tab) # to get minimum
np.max(tab) # to get maximum
np.sort(tab) # to sort
np.argmin(tab) # get index of the minimum
np.argmax(tab) # get index of the maximum
tab.append(element) # add element to tab
```

In [ ]:
```
# access table element
tab[i] # one dimension
tab[i, j] # two dimension
# access slice of table
tab[i:i+3, :]
tab[:, j]
```