CS 6476
Assignment 1

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2. (a) Creates a 1d numpy array with a random permutation of numbers from 1 to 999.

   (b) Creates a 1d numpy array b with third row of array a.
   b = [4,5,6]

   (c) Creates a 1d numpy array b, with elements in order, b = [1,2,3,4,5,6,7,8,9]

   (d) f = An array of shape (5,1) populated with random floats
   g = 1d array with all elements of f which are greater than 0

   (e) x = 1d array of size 10 with all elements as 0.5
   y = 1d array of size 10 with all elements as 0.5
   z = 1d array of size 10 with all elements as 1

   (f) a = 1d array with values from 1 to 99 in order
   b = 1d array reverse of a.

3. (a)

```
a = np.random.rand(N)*6
a = a.astype(int)+1
```

   (b)

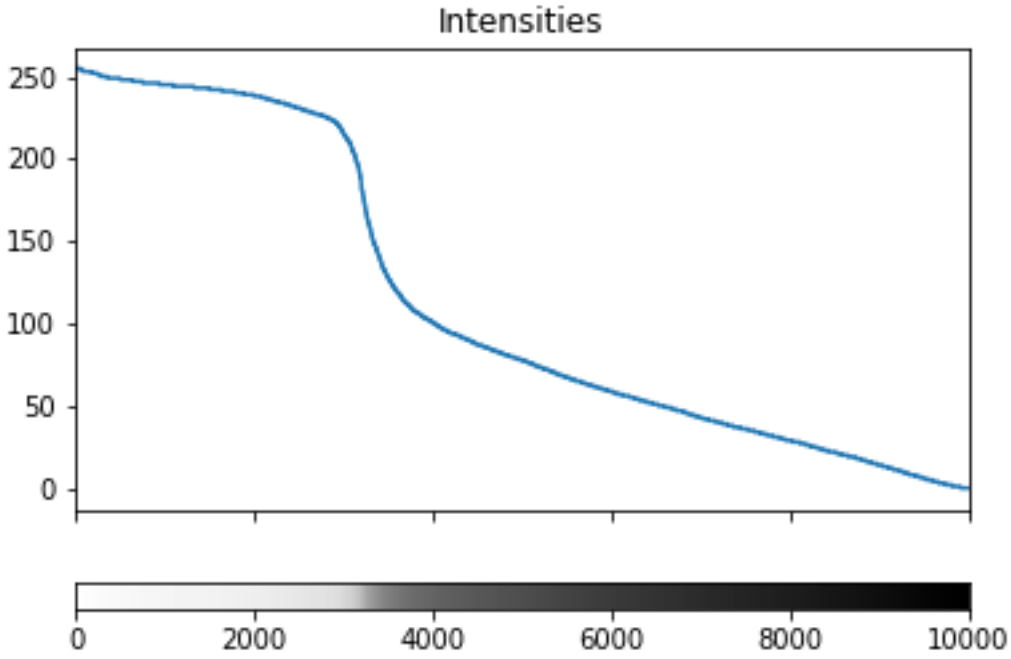
```
y = np.array([1, 2, 3, 4, 5, 6])
z = y.reshape(-1,2)
```

   (c)

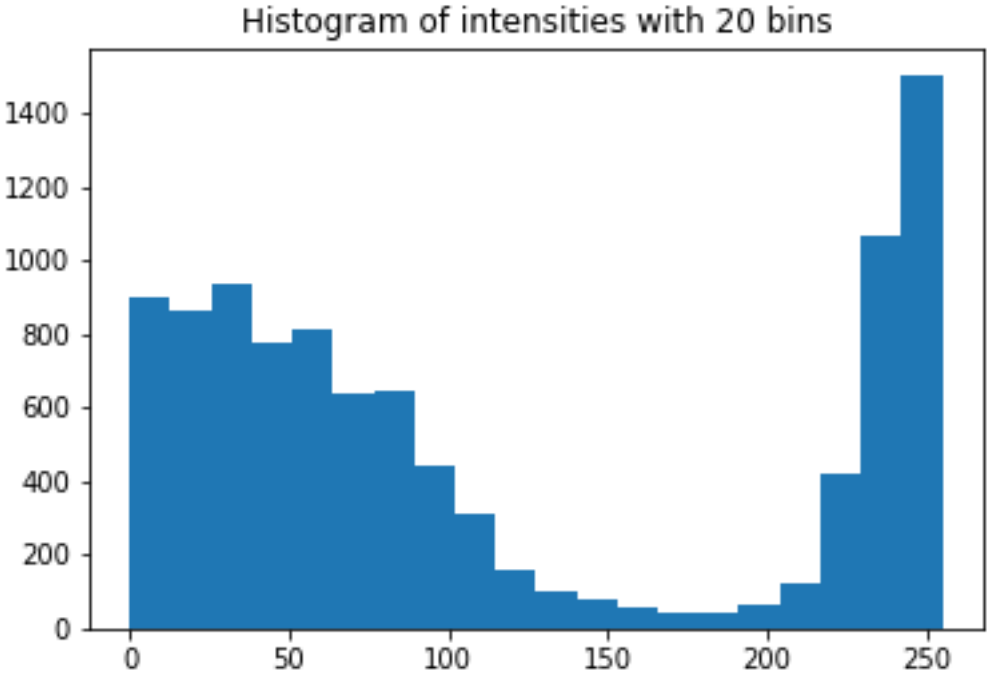
```
x = np.max(z)
y = np.where(z == x)
r = y[0][0]
c = y[1][0]
```

   (d)

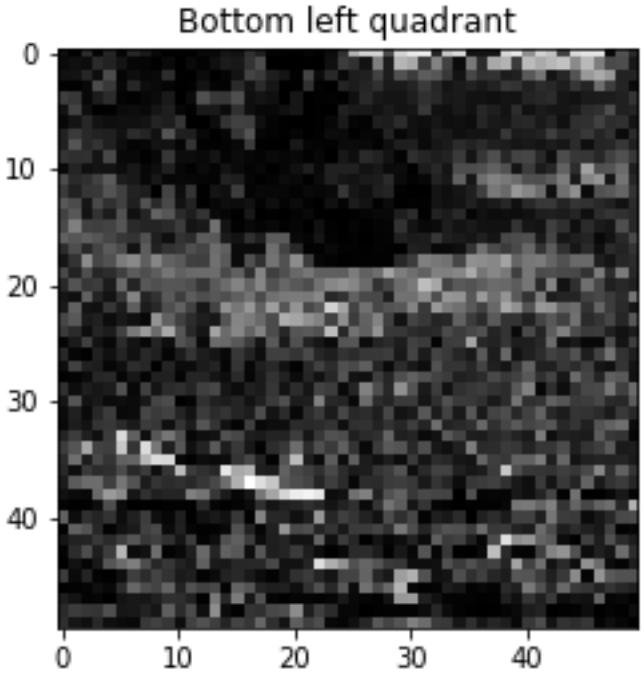
```
v = np.array([1, 8, 8, 2, 1, 3, 9, 8])
x = v[v==1].size
```


Intensities
250
200
150
100
50
0
0
2000
4000
6000
8000
10000

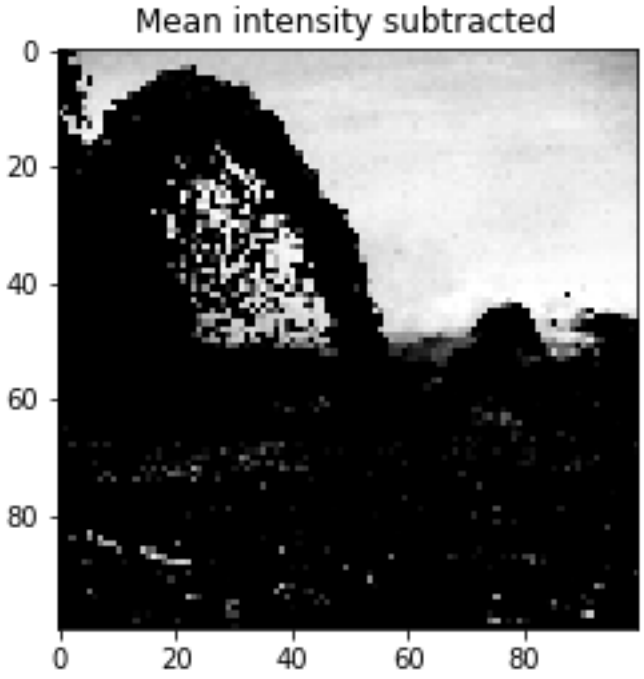
4. (a)


Histogram of intensities with 20 bins
1400
1200
1000
800
600
400
200
0
0
50
100
150
200
250

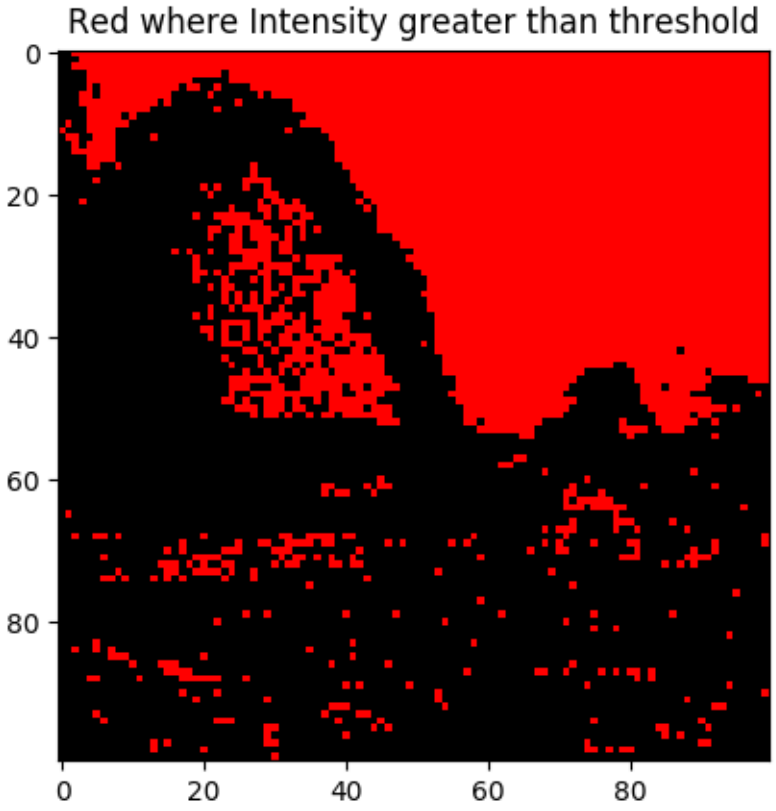
(b)


Bottom left quadrant
0
10
20
30
40
0
10
20
30
40

(c)


Mean intensity subtracted
0
20
40
60
80
0
20
40
60
80

(d)


Red where Intensity greater than threshold
0
20
40
60
80
0
20
40
60
80

(e)

Red and Green swapped

Grayscale

Negative image

Mirror image

Mirror and Grayscale average image

Image with added noise

5.