cycle 2

In [1]:
```
import numpy as np
```

3

8x8 matrix

In [3]:
```
x= np.zeros((8,8), dtype = int)
x[1::2,::2] = 1
x[::2,1::2] = 1
print(x)
```

```
[[0 1 0 1 0 1 0 1]
 [1 0 1 0 1 0 1 0]
 [0 1 0 1 0 1 0 1]
 [1 0 1 0 1 0 1 0]
 [0 1 0 1 0 1 0 1]
 [1 0 1 0 1 0 1 0]
 [0 1 0 1 0 1 0 1]
 [1 0 1 0 1 0 1 0]]
```

4

1 D array each element present

In [4]:
```
arr1 = np.array([2,3,4,5,6,7])
print(arr1)
arr2 = np.array([4,3,7,9])
print(arr2)
print("comparison of two array is:")
print(np.in1d(arr1,arr2))
```

```
[2 3 4 5 6 7]
[4 3 7 9]
comparison of two array is:
[False  True  True False False  True]
```

5

a. create two arrays

b. common element

c. union

In [5]:
```
a1 = np.array([0,1,2,4,5,6])
a2 = np.array([1,2,3,6,7,9])
print("intersection is: ",np.intersect1d(a1,a2))
print("union is: ",np.union1d(a1,a2))
```

```
intersection is:  [1 2 6]
union is:  [0 1 2 3 4 5 6 7 9]
```

6

get unique element

In [7]:
```
a = np.array([1,1,2,2,3,4,4,5,6,7,7])
print(np.unique(a))
```

```
[1 2 3 4 5 6 7]
```

7

convert numpy array to python list

In [8]:
```
arr = np.array([1,2,3,4])
print("array is: ",arr)
print(type(arr))
list = arr.tolist()
print("list is: ",list)
print(type(list))
```

```
array is:  [1 2 3 4]
<class 'numpy.ndarray'>
list is:  [1, 2, 3, 4]
<class 'list'>
```

In [49]:
```
y= np.zeros((8,8), dtype = int)
y[0::2,:2:1]=1
y[0::2,4:6:1]=1
y[1::2,2:4:1]=1
y[1::2,6:8:1]=1
print(y)
```

```
[[1 1 0 0 1 1 0 0]
 [0 0 1 1 0 0 1 1]
 [1 1 0 0 1 1 0 0]
 [0 0 1 1 0 0 1 1]
 [1 1 0 0 1 1 0 0]
 [0 0 1 1 0 0 1 1]
 [1 1 0 0 1 1 0 0]
 [0 0 1 1 0 0 1 1]]
```

In [50]:
```
z=np.zeros((8,8),dtype=int)
z[0::2,4::1]=1
z[1::2,0:4:1]=1
print(z)
```

```
[[0 0 0 0 1 1 1 1]
 [1 1 1 1 0 0 0 0]
 [0 0 0 0 1 1 1 1]
 [1 1 1 1 0 0 0 0]
 [0 0 0 0 1 1 1 1]
 [1 1 1 1 0 0 0 0]
 [0 0 0 0 1 1 1 1]
 [1 1 1 1 0 0 0 0]]
```

8

Write a numpy program to access array by column

In [56]:
```
array = np.array([[1,2,3],[4,8,11],[30,5,9]])
print(array)
print("accessing 3rd column: ")
print(array[:, 2])
print("accessing 2nd column: ")
print(array[:, 1])
print("accessing 1st column: ")
print(array[:, 0])
```

```
[[ 1  2  3]
 [ 4  8 11]
 [30  5  9]]
accessing 3rd column:
[ 3 11  9]
accessing 2nd column:
[2 8 5]
accessing 1st column:
[ 1  4 30]
```

9

Write a numpy program to compute

a) multiplication of two given matrices.

b) addition of two matrices

In [ ]:
```

```