

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

1. Index of 50th element

Consider an (8, 8) shape NumPy array. What is the index (x,y) of the 50th element?

Note: For counting the elements go row-wise. For example, in the array,

[[1, 5, 9],

[3, 0, 2]]

the 5th element would be '0'.

```
In [19]: df1 = np.arange(1,65).reshape((8,8))
```

Alternative: 1

```
In [17]: np.argwhere(df1==50)
```

```
Out[17]: array([[6, 1]], dtype=int64)
```

Alternative: 2

```
In [18]: np.unravel_index(49, (8,8))
```

```
Out[18]: (6, 1)
```

2. Slicing Arrays

Which of the following would extract all the first 3 rows of the last 5 columns in a given numpy 2D array 'a'?

Answer: -

a[:3,-5:]

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3. So Many Functions

What will the output of np.arange(1,16,2).reshape(4, 2) be?

```
In [24]: np.arange(1,16,2).reshape(4, 2)
```

```
Out[24]: array([[ 1,  3],
               [ 5,  7],
               [ 9, 11],
               [13, 15]])
```

4. Coding question

```
In [43]: import numpy as np

n = int(input())
mid = int(n/2)
df = np.zeros((n,n),dtype=int)
df[mid,:]=df[:,mid]=1
df
```

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Out[43]: array([[0, 0, 0, 1, 0, 0, 0],
               [0, 0, 0, 1, 0, 0, 0],
               [0, 0, 0, 1, 0, 0, 0],
               [1, 1, 1, 1, 1, 1, 1],
               [0, 0, 0, 1, 0, 0, 0],
               [0, 0, 0, 1, 0, 0, 0],
               [0, 0, 0, 1, 0, 0, 0]])
```

