


### Exercise 1.3:

Create an array of odd numbers between 30 to 40 using **arange** function.

```
[ ]  ### START CODE HERE ###  
      np.arange(31,40,2)  
      ### END CODE HERE ###
```

 array([31, 33, 35, 37, 39])


### Expected Output:

[31, 33, 35, 37, 39]

### Exercise 1.4:

Create a random array of 15 numbers from 10 to 40. Reshape the same array to 3x5

```
[ ]  ### START CODE HERE ###  
      arr = np.random.randint(10,40,15)    #create random array  
      arr                                     #print the array  
      arr.reshape(3,5)                     #reshape the array
```

 array([[35, 35, 10, 16, 21],  
 [33, 21, 25, 22, 16],  
 [34, 23, 28, 11, 10]])

```
[ ]  a = arr.min()    #get the minimum value  
      a
```

 10


```
[ ]  b = arr.max()    #get the maximum value  
      b  
      ### END CODE HERE ###
```

 35

### Exercise 2.2:

Create an array **arr** from 5 to 15. Create a copy **arr2** of the same array and replace first 5 values with 100.

```
[ ]  ### START CODE HERE ###  
      arr = np.arange(5,15)  
      arr2 = arr.copy()  
      arr2[0:5] = 100  
      arr2  
      ### END CODE HERE ###
```

 array([100, 100, 100, 100, 100, 10, 11, 12, 13, 14])

### Exercise 2.3:

Using the given array **arr\_2d** print (2, 2) matrix of the bottom right elements.

```
[ ]  ### START CODE HERE ###  
      arr_2d      #don't forget to run the previous cells first  
  
      ### END CODE HERE ###
```

```
array([[ 5, 10, 15],  
       [20, 25, 30],  
       [35, 40, 45]])
```

### Exercise 2.4:

Create and array **odd** of odd numbers between 20 to 30 and print the array containing numbers greater than 25.

```
[ ]  ### START CODE HERE ###  
      odd = np.arange(21,30,2)  
      x = 25  
      odd = odd[odd>x]  
      odd  
      ### END CODE HERE ###
```

```
array([27, 29])
```

### ➤ Addition of arrays

```
[ ]  arr + arr
```

```
array([ 0,  2,  4,  6,  8, 10, 12, 14, 16, 18])
```

### ➤ Multiplication of arrays

```
[ ]  arr * arr
```

```
array([ 0,  1,  4,  9, 16, 25, 36, 49, 64, 81])
```


### ➤ Subtraction of arrays

```
[ ]  arr - arr
```


```
array([0, 0, 0, 0, 0, 0, 0, 0, 0, 0])
```

## ▼ Division of arrays

```
[ ] # Warning on division by zero, but not an error!  
# Just replaced with nan  
arr/arr
```

 /usr/local/lib/python3.6/dist-packages/ipykernel\_launcher.py:1: RuntimeWarning: invalid value encountered in true\_divide  
"""Entry point for launching an IPython kernel.  
array([nan, 1., 1., 1., 1., 1., 1., 1., 1., 1.])

```
[ ] # Also warning, but not an error instead infinity  
1/arr
```

 /usr/local/lib/python3.6/dist-packages/ipykernel\_launcher.py:1: RuntimeWarning: divide by zero encountered in true\_divide  
"""Entry point for launching an IPython kernel.  
array([ inf, 1. , 0.5 , 0.33333333, 0.25 ,  
 0.2 , 0.16666667, 0.14285714, 0.125 , 0.11111111])