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

In [2]:
```
# numpy : numerical python

friends = ['toy','euro','bird']
```

In [3]:
```
type(friends)
```

Out[3]:
```
list
```

In [4]:
```
np.array(friends)
```

Out[4]:
```
array(['toy', 'euro', 'bird'], dtype='<U4')
```

In [5]:
```
arr_friends = np.array(friends)
```

In [6]:
```
arr_friends[0]
```

Out[6]:
```
'toy'
```

In [7]:
```
scores = [100,65,72,85,90]
```

In [8]:
```
arr_scores = np.array(scores)
```

In [18]:
```
print(np.mean(arr_scores))
print(np.sum(arr_scores))
print(np.median(arr_scores))
print(np.std(arr_scores))
```

```
82.4
412
85.0
12.531560158256433
```

In [35]:
```
# 2D list

twod_array = np.array([
    [1,2,3],
    [4,5,6]
])
```

In [37]:
```
print(twod_array[1][1])
print(twod_array[1][2])
print(twod_array[1,2])
```

```
5
6
6
```

In [38]:
```
mat1 = np.array([[1,2],[3,4]])
mat2 = np.array([[3,3],[4,5]])
```

In [39]:
```
mat1.dot(mat2)
```

Out[39]:
```
array([[11, 13],
       [25, 29]])
```

In [40]:
```
np.dot(mat1,mat2)
```

Out[40]:
```
array([[11, 13],
       [25, 29]])
```

In [ ]:
```
# sklearn == ML
# python ML AI > R
```

In [41]:
```
from sklearn.linear_model import LinearRegression
from sklearn.model_selection import train_test_split
```

ML workflow

1. split - train test split
2. train - .fig
3. score - .predict
4. evaluate

No free lunch = experiment