Case Study - Cricket Tournament

Example - 1

Players list contain the height(inches) and weight(lbs) data for all the players

In [1]:

```
# list of height and weight of the players.
players = [(74, 180), (74, 215), (72, 210), (72, 210), (73, 188), (69, 176), (69, 209), (71, 200), (76, 231), (71, 18
```

In [2]:

```
len(players)
```

Out[2]:

```
1015
```

In [2]:

```
players[1][1]
```

Out[2]:

```
215
```

In [3]:

```
import numpy as np

np_players = np.array(players)
```

In [4]:

```
np_players
```

Out[4]:

```
array([[ 74, 180],
       [ 74, 215],
       [ 72, 210],
       ...,
       [ 75, 205],
       [ 75, 190],
       [ 73, 195]])
```

In [5]:

```
type(np_players)
```

Out[5]:

```
numpy.ndarray
```

In [ ]:

```

```

Example - 2 (Numpy Attributes)

Print the structure of the 2-D Array

```
In [6]: np_players.shape
```

```
Out[6]: (1015, 2)
```

Print the dimensions of the array

```
In [7]: np_players.ndim
```

```
Out[7]: 2
```

Print the data type of elements in the array

```
In [8]: np_players.dtype
```

```
Out[8]: dtype('int32')
```

Print the size of a single item of the array

```
In [9]: np_players.itemsize
```

```
Out[9]: 4
```

Example - 3

Convert the heights to meters and weights to kg

```
In [10]: players_converted = np_players * [0.0254, 0.453592]
```

```
In [14]: players_converted
```

```
Out[14]: array([[ 1.8796 , 81.64656],
                [ 1.8796 , 97.52228],
                [ 1.8288 , 95.25432],
                ...,
                [ 1.905  , 92.98636],
                [ 1.905  , 86.18248],
                [ 1.8542 , 88.45044]])
```

Sub-Setting 2-D Arrays

Fetch the first row from the array

```
In [15]: players_converted[0]
```

```
Out[15]: array([ 1.8796 , 81.64656])
```

Fetch the first row 2nd element from the array

```
In [16]: players_converted[0][1]
```

```
Out[16]: 81.64656
```

Fetch the first column from the array

```
In [17]: players_converted[:, 0]
```

```
Out[17]: array([1.8796, 1.8796, 1.8288, ..., 1.905 , 1.905 , 1.8542])
```

Fetch the height (1st column) of 125th player from the array

```
In [18]: players_converted[124][0]
```

```
Out[18]: 1.9811999999999999
```

```
In [19]: players_converted[124,0]
```

```
Out[19]: 1.9811999999999999
```

Conditional Sub-Setting Arrays

Fetch height and weight of players with height above 1.8m

```
In [21]: tall_players = players_converted[players_converted[:,0] > 1.8]
```

```
In [22]: players_converted.shape
```

```
Out[22]: (1015, 2)
```

```
In [23]: tall_players.shape
```

```
Out[23]: (936, 2)
```

Skills Array - holds the player key skills.

```
In [24]: skills = np.array(['Keeper', 'Batsman', 'Bowler', 'Keeper-Batsman', 'Batsman', 'Keeper-Batsman', 'Batsman', 'Batsman
         skills
```

```
Out[24]: array(['Keeper', 'Batsman', 'Bowler', ..., 'Batsman', 'Bowler',
                'Keeper-Batsman'], dtype='<U14')
```

Fetch Heights of the Batsmen

```
In [25]: batsmen = players_converted[skills == 'Batsman']
```

```
In [27]: batsmen.shape
```

```
Out[27]: (323, 2)
```

```
In [28]: batsmen[:, 0]
```

```
Out[28]: array([1.8796, 1.8542, 1.7526, 1.8034, 1.9304, 1.8542, 1.8542, 1.778 ,
                2.0066, 1.8288, 1.8034, 1.905 , 1.9558, 1.8542, 1.905 , 1.8796,
                1.8034, 1.8542, 1.8796, 1.9304, 1.905 , 1.9304, 1.8288, 1.905 ,
                1.8542, 1.778 , 1.778 , 1.8034, 1.8288, 1.905 , 1.9812, 1.8034,
                1.8542, 1.8542, 1.9304, 1.8796, 1.8542, 1.8288, 1.8542, 1.8288,
                1.8542, 1.8288, 1.905 , 1.905 , 1.8288, 1.8288, 1.9558, 1.9558,
                1.905 , 1.9304, 2.032 , 1.905 , 1.8542, 1.8796, 1.905 , 1.8034,
                1.9304, 1.8796, 1.8542, 1.8542, 1.8034, 1.8542, 1.8542, 1.8288,
                1.905 , 1.778 , 1.8034, 1.8288, 1.905 , 1.8542, 1.9304, 1.905 ,
                1.9304, 1.8288, 1.8542, 1.905 , 1.8796, 1.8034, 1.9558, 1.9812,
                1.905 , 1.905 , 1.9304, 1.8288, 1.8288, 1.8542, 1.8796, 1.8796,
                1.905 , 1.8542, 1.8796, 1.9558, 1.9812, 1.9812, 1.8796, 1.9812,
                1.8796, 1.8288, 1.9304, 1.8542, 1.8542, 1.9558, 1.9558, 1.8034,
                1.9812, 1.778 , 1.8796, 1.8288, 1.8542, 1.905 , 1.8796, 1.8542,
                1.8796, 1.8542, 1.9812, 1.9304, 1.8542, 1.905 , 1.9812, 1.9558,
                1.8288, 1.7526, 1.8796, 1.778 , 1.8796, 1.9304, 1.905 , 1.8542,
                1.8542, 1.8542, 1.8796, 1.8796, 1.778 , 1.8796, 1.905 , 1.8288,
                1.9558, 1.8542, 1.9304, 1.8542, 1.905 , 1.8796, 1.8542, 1.8034,
                1.9304, 1.905 , 1.8542, 1.8542, 1.9304, 1.8542, 1.905 , 1.905 ,
                1.9558, 1.8796, 1.8034, 1.8796, 1.8796, 1.905 , 1.8288, 1.8542,
                1.9304, 1.9558, 1.8542, 1.778 , 1.8542, 1.8796, 1.9558, 1.905 ,
                1.8542, 1.9558, 1.9558, 1.8796, 1.8796, 1.905 , 1.8034, 1.778 ,
                2.0066, 1.8796, 1.8288, 2.0828, 1.8796, 1.8796, 1.8288, 1.9304,
                1.8542, 1.8288, 1.8288, 1.778 , 1.8034, 1.905 , 1.9304, 1.9304,
                1.9812, 1.905 , 1.9304, 1.8288, 1.8542, 1.778 , 1.8796, 1.8542,
                1.8542, 1.905 , 1.778 , 2.0066, 1.905 , 1.905 , 1.8542, 1.778 ,
                1.8034, 1.905 , 1.8288, 1.8288, 1.9304, 1.905 , 1.7526, 1.8288,
                1.9304, 1.8034, 1.905 , 1.9558, 1.778 , 1.8288, 1.8034, 1.8796,
                1.9304, 1.8288, 1.8796, 1.8288, 1.8034, 1.778 , 1.8288, 1.8796,
                1.8796, 1.905 , 1.8796, 1.8034, 1.8034, 1.9304, 1.8034, 1.8796,
                1.8288, 1.9304, 1.9812, 1.8288, 1.9304, 1.778 , 1.7272, 1.8034,
                1.9558, 1.7526, 1.905 , 1.905 , 1.9304, 1.8288, 1.9558, 1.778 ,
                2.0066, 1.8796, 1.7272, 1.905 , 1.8288, 1.8288, 1.8542, 1.8796,
                1.8288, 1.905 , 1.8288, 1.8542, 1.9304, 1.8796, 1.905 , 1.9304,
                1.8796, 1.8288, 1.8542, 1.8288, 1.8542, 1.8288, 1.8542, 1.778 ,
                1.8288, 1.905 , 1.8542, 1.9304, 1.9558, 1.9558, 1.905 , 1.905 ,
                1.9304, 1.8288, 1.8542, 1.8796, 1.8288, 1.8796, 1.8796, 1.905 ,
                1.8034, 1.9304, 1.8542, 1.7272, 1.8288, 1.7526, 1.8542, 1.905 ,
                1.8796, 1.8796, 1.8796, 1.8542, 1.8796, 1.905 , 1.8796, 1.8542,
                1.9304, 1.9812, 1.8542, 1.905 , 1.7018, 1.778 , 1.778 , 2.0066,
                1.9304, 1.8288, 1.905 ])
```

```
In [ ]:
```