Case Study - Cricket Tournament

Example - 1 Players list contain the height(inches) and weight(lbs) data for all the players

1- Create an random interger 2D np array of shape 1015*2 representiing height and weight of players. heights in inches should be in the range of 67 to 83 wights in lbs should be in the range of 150 to 290

hint: vstack

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

In [ ]:
```
# Define list
heights = [74, 74, 72, 72, 73, 69, 69, 71, 76, 71, 73, 73, 74, 74, 69, 70, 73, 75, 78, 79, 76, 74, 76, 72, 71, 75, 77, 74, 73,
heights = np.array(heights,dtype=float)
```

In [ ]:
```
weights_lb = [180, 215, 210, 210, 188, 176, 209, 200, 231, 180, 188, 180, 185, 160, 180, 185, 189, 185, 219, 230, 205, 230, 19
weights_lb = np.array(weights_lb,dtype=float)
```

In [ ]:
```
data = np.vstack((heights,weights_lb))
data = data.T
data
```

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

Convert the heights to meters and weights to kg

In [ ]:
```
data[:,0] = data[:,0] * 0.0254
data[:,1] = data[:,1] * 0.4535
data
```

Out[ ]:
```
array([[ 1.8796, 81.63  ],
       [ 1.8796, 97.5025],
       [ 1.8288, 95.235 ],
       ...,
       [ 1.905 , 92.9675],
       [ 1.905 , 86.165 ],
       [ 1.8542, 88.4325]])
```

Fetch the first row from the array

In [ ]:
```
data[0]
```

Out[ ]:
```
array([ 1.8796, 81.63  ])
```

Fetch the first row 2nd element from the array

In [ ]:
```
data[0,1]
```

Out[ ]:
```
81.63
```

Fetch the first column from the array

In [ ]:
```
data[:,0]
```

Out[ ]:
```
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 [ ]:
```
data[124,0]
```

Out[ ]:
```
1.9811999999999999
```

Fetch height and weight of players with height above 1.8m

In [ ]:
```
cond = data[:,0]>1.8
data[cond]
```

Out[ ]:
```
array([[ 1.8796, 81.63  ],
       [ 1.8796, 97.5025],
       [ 1.8288, 95.235 ],
       ...,
       [ 1.905 , 92.9675],
       [ 1.905 , 86.165 ],
       [ 1.8542, 88.4325]])
```

Skills Array of size 1015 - holds the player key skills with given skills ['Batsman', 'Bowler', 'Keeper', 'Keeper-Batsman']

hint: use np.tile

In [ ]:
```
skill = ['Batsman', 'Bowler', 'Keeper', 'Keeper-Batsman']
skills = np.tile(skill,(254))
skills = skills[:1015]
skills.reshape((1015,1))
```

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

Fetch Heights of the Batsmen

In [ ]:
```
cond = skills == 'Batsman'
data[cond]
```

Out[ ]:
```
array([[  1.8796,  81.63  ],
       [  1.8542,  85.258 ],
       [  1.9304, 104.7585],
       [  1.8796,  83.8975],
       [  1.8542,  85.7115],
       [  1.9304,  92.9675],
       [  1.8034,  87.072 ],
       [  1.8542,  82.537 ],
       [  1.905 ,  90.7   ],
       [  1.8796,  97.5025],
       [  1.8542,  90.7   ],
       [  1.8796,  93.421 ],
       [  1.8796,  95.235 ],
       [  1.9304,  96.142 ],
       [  1.8796,  99.77  ],
       [  1.9812, 103.398 ],
       [  1.9304,  86.165 ],
       [  1.905 ,  95.235 ],
       [  1.778 ,  81.63  ],
       [  1.7272,  70.2925],
       [  1.905 , 102.0375],
       [  1.8796,  92.9675],
       [  1.9304,  86.165 ],
       [  1.905 , 100.677 ],
       [  1.8796,  99.77  ],
       [  1.8542,  99.77  ],
       [  1.7526,  81.63  ],
       [  1.905 ,  97.5025],
       [  1.9304,  87.072 ],
       [  1.8796,  95.235 ],
       [  2.032 ,  99.77  ],
       [  1.9812,  95.235 ],
       [  1.905 , 108.84  ],
       [  1.8796,  88.4325],
       [  1.8542,  95.235 ],
       [  1.8542,  77.095 ],
       [  1.8034,  80.723 ],
       [  1.8796,  95.6885],
       [  1.905 ,  86.165 ],
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       [  1.8542,  93.421 ],
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       [  1.8796, 104.305 ],
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       [  1.905 , 102.491 ],
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       [  1.8288,  79.816 ],
       [  1.8034,  75.7345],
       [  1.8288,  97.5025],
       [  1.8288,  92.9675],
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```

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```