In [2]:

```python
#Python Sets with Syntax and Examples
#A set in Python holds a sequence of values. It is sequenced but does not support indexing.

#Creating a Python set
TeamA = {'Barath','Vinoth','Manoj','Roshan', 7, 5}
TeamB = {'Gopi','Vinoth','Prakesh','Roshan', 5, 5}

print(TeamA)
print(TeamB)
```

```
{'Vinoth', 5, 7, 'Manoj', 'Barath', 'Roshan'}
{'Vinoth', 5, 'Gopi', 'Roshan', 'Prakesh'}
```

In [7]:

```python
#Mutability, A set is mutable

TeamA = {'Barath','Vinoth','Manoj','Roshan', 7, 5,1,2,3}
TeamB = {'Gopi','Vinoth','Prakesh','Roshan', 5, 5,1,2}
print(TeamA)
print(TeamB)

#But may not contain mutable items like a list, set, or even a dictionary.
            #Error
#TeamA = {'Barath',5, [1,2,3]}
#TeamB = {'Gopi','Prakesh', {1,2,3}}
```

```
{'Vinoth', 1, 2, 3, 5, 7, 'Manoj', 'Barath', 'Roshan'}
{'Vinoth', 1, 2, 5, 'Gopi', 'Roshan', 'Prakesh'}
```

In [14]:

```python
#Create a set with the set() function.
abc = set()
ab = {}
print(type(abc))
print(type(ab))

#set() function may also take one argument, like a list.
abc = set([1, 2, 3])
print(abc)
```

```
<class 'set'>
<class 'dict'>
{1, 2, 3}
```

In [ ]:

```python
#Accessing a Set in Python
```

In [20]:

```
TeamA
```

Out[20]:

```
{1, 2, 3, 5, 7, 'Barath', 'Manoj', 'Roshan', 'Vinoth'}
```

In [21]:

```
TeamB
```

Out[21]:

```
{1, 2, 5, 'Gopi', 'Prakesh', 'Roshan', 'Vinoth'}
```

In [56]:

```
#Deleting a Set in Python
#discard() remove() pop()
#Difference-If you try deleting an item that doesn't exist in the set, discard()
ignores it, but remove() raises a KeyError.

numbers={3,2,1,4,6,5,7,9,8}
```

In [57]:

```
numbers.discard(10)
numbers.remove(5)
```

In [58]:

```
numbers.pop()
```

Out[58]:

```
1
```

In [59]:

```
numbers
```

Out[59]:

```
{2, 3, 4, 6, 7, 8, 9}
```

In [60]:

```
#clear()
numbers.clear()
numbers
```

Out[60]:

```
set()
```

In [61]:

```
#Updating a Set
#add() update()
numbers.add(5)
numbers.add(4)
numbers.update([7,8],{1,2,9})
numbers
```

Out[61]:

```
{1, 2, 4, 5, 7, 8, 9}
```

In [63]:

```
#Functions on Sets
#len() max() min() sum() sorted()

days={'Monday','Tuesday','Wednesday','Thursday','Friday','Saturday','Sunday'}
days
```

Out[63]:

```
{'Friday', 'Monday', 'Saturday', 'Sunday', 'Thursday', 'Tuesday', 'W
ednesday'}
```

In [64]:

```
len(days)
```

Out[64]:

```
7
```

In [68]:

```
max(3,1,2)
max({3,1,2})
#max({1,2,'three','Three'})    Error
```

Out[68]:

```
3
```

In [69]:

```
min(days)   #lowest & highest ASCII
```

Out[69]:

```
'Friday'
```

In [70]:

```
sum({1,2,3})
```

Out[70]:

```
6
```

In [ ]:

```
#Methods on sets
#union() intersection() difference() symmetric_difference()
```

In [71]:

```
#union()
set1,set2,set3={1,2,3},{3,4,5},{5,6,7}
set1.union(set2,set3)
```

Out[71]:

{1, 2, 3, 4, 5, 6, 7}

In [72]:

```
#intersection()
set2.intersection(set1)
```

Out[72]:

{3}

In [73]:

```
set2.intersection(set1,set3)
```

Out[73]:

set()

In [74]:

```
#difference()
set1.difference(set2)
set1.difference(set2,set3)
```

Out[74]:

{1, 2}

In [75]:

```
#symmetric_difference()
set1.symmetric_difference(set2)
```

Out[75]:

{1, 2, 4, 5}

In [ ]:

```
#Directory
```

In [109]:

```python
dictionary={'PB':'Peanut Butter','PJ':'Pajamas'}
type(dictionary)
```

Out[109]:

dict

In [97]:

```python
mydict={x*x:x for x in range(8)}
mydict
```

Out[97]:

{0: 0, 1: 1, 4: 2, 9: 3, 16: 4, 25: 5, 36: 6, 49: 7}

In [110]:

```python
dict3={1:'carrots','two':[1,2,3]}
dict3
```

Out[110]:

{1: 'carrots', 'two': [1, 2, 3]}

In [112]:

```python
#One key more than once
mydict2={1:2,1:3,1:4,2:4}
mydict2
```

Out[112]:

{1: 4, 2: 4}

In [113]:

```python
#Empty dict and adding element
animals={}
type(animals)
```

Out[113]:

dict

In [115]:

```python
animals[1]='dog'
animals[2]='cat'
animals[3]='lion'
animals
```

Out[115]:

{1: 'dog', 2: 'cat', 3: 'lion'}

In [ ]:

In [ ]:

```python
#Sports seletion process
```

In [100]:

```python
import pandas as pd
import matplotlib as plt
#seletion 1

Hockey = set(['Manoj', 'Balaji', 'Barath', 'Vinoth', 'Gopi', 'Roshan'])
Football = set(['Mani','Barath','Manoj','Vinoth','Kumar','Roshni','Kishore'])
Cricket = set(['Prakesh','Karthick','Mani','Vinoth','Kumar','Roshni'])

Result1={'Hockey count':Hockey,'Football count':Football,'Cricket count':Cricket
}
```

In [101]:

```python
#seletion 2

Hockey1 = set(['Manoj Kumar', 'Kishore', 'Barath', 'Vinoth kumar', 'Gopi', 'Roshni'])
Football1 = set(['Mani','Barath','Prakesh','Vinoth Kumar','Roshan','Kishore'])
Cricket1 = set(['Mani','Karthick','Mani','Vinoth','Kumar','Kishore'])

Result1={'Hockey count':Hockey1,'Football count':Football1,'Cricket count':Cricket1}
```

In [128]:

```python
from matplotlib_venn import *
import matplotlib.pyplot as plt
```

```
---------------------------------------------------------------------------
ModuleNotFoundError                       Traceback (most recent call last)
<ipython-input-128-5c746628433f> in <module>
----> 1 from matplotlib_venn import *
      2 import matplotlib.pyplot as plt

ModuleNotFoundError: No module named 'matplotlib_venn'
```

In [126]:

```python
venn2([Hockey,Hockey1])
plt.show()
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-126-22fdfe99c422> in <module>
----> 1 venn2([Hockey,Hockey1])
      2 plt.show()

NameError: name 'venn2' is not defined
```

```python
import pandas as pd
import matplotlib as plt
#seletion 1

Hockey = set(['Manoj', 'Balaji', 'Barath', 'Vinoth', 'Gopi', 'Roshan'])
Football = set(['Mani','Barath','Manoj','Vinoth','Kumar','Roshni','Kishore'])
Cricket = set(['Prakesh','Karthick','Mani','Vinoth','Kumar','Roshni'])

Result1={'Hockey count':Hockey,'Football count':Football,'Cricket count':Cricket}

#seletion 2

Hockey1 = set(['Manoj Kumar', 'Kishore', 'Barath', 'Vinoth kumar', 'Gopi', 'Roshni'
Football1 = set(['Mani','Barath','Prakesh','Vinoth Kumar','Roshan','Kishore'])
Cricket1 = set(['Mani','Karthick','Mani','Vinoth','Kumar','Kishore'])

Result1={'Hockey count':Hockey1,'Football count':Football1,'Cricket count':Cricket1

from matplotlib_venn import *
import matplotlib.pyplot as plt

print("Point table of both selection in field Hockey")
venn2([Hockey,Hockey1])
plt.show()

print("Point table of both selection in Cricket")
venn2([Cricket,Cricket1])
plt.show()

print("Point table of both selection in Football")
venn2([Football,Football1])
plt.show()

print("Point table of 1rd selection")
venn3([Hockey,Cricket,Football])
plt.show()

print("Point table of 2nd selection")
venn3([Hockey1,Cricket1,Football1])
plt.show()
```
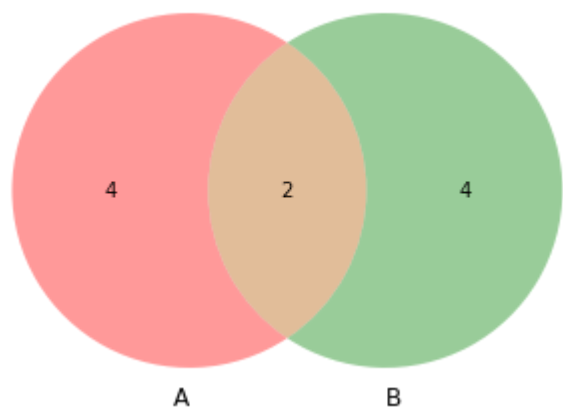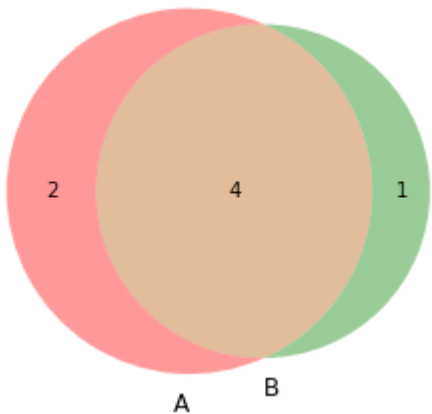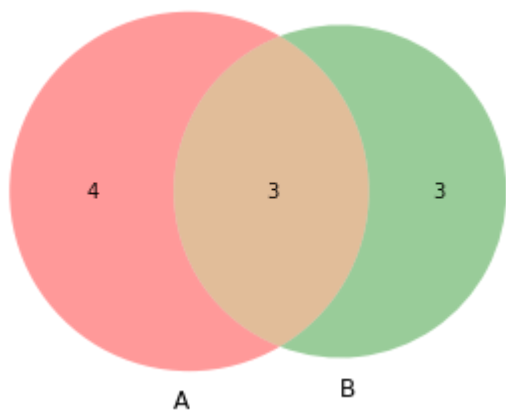
↱

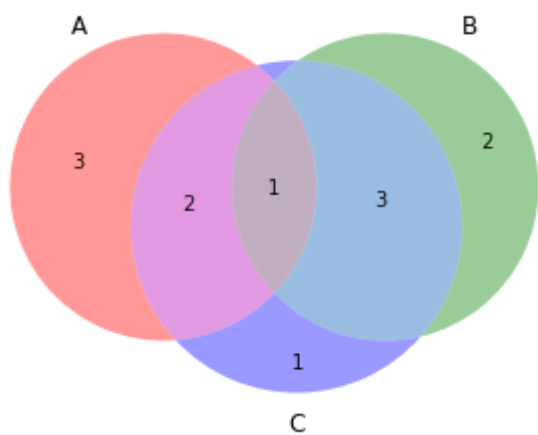Point table of both selection in field Hockey

Point table of both selection in Cricket

Point table of both selection in Football

Point table of 1rd selection

Point table of 2nd selection