How to read content of set?

Content of set can be read in 3 ways

1. Using for loop
2. Using iterator object
3. Using enumerate object

Example:

```
A={10,20,30,40,50}

# Using for loop
for value in A:
    print(value)

# Using iterator object
a=iter(A)
value1=next(a)
value2=next(a)
print(value1,value2,sep="\n")

# Using enumerate
e=enumerate(A)
t1=next(e)
t2=next(e)
print(t1,t2,sep="\n")
```

Output

```
50
20
40
10
30
50
20
(0, 50)
(1, 20)
```

How data is organized in set?

Set is unordered collection, inside set data is organized by using hashing data structure.

What is hashable object?
An object which generates hash value is called hashable object. All immutable objects are called hashable objects.

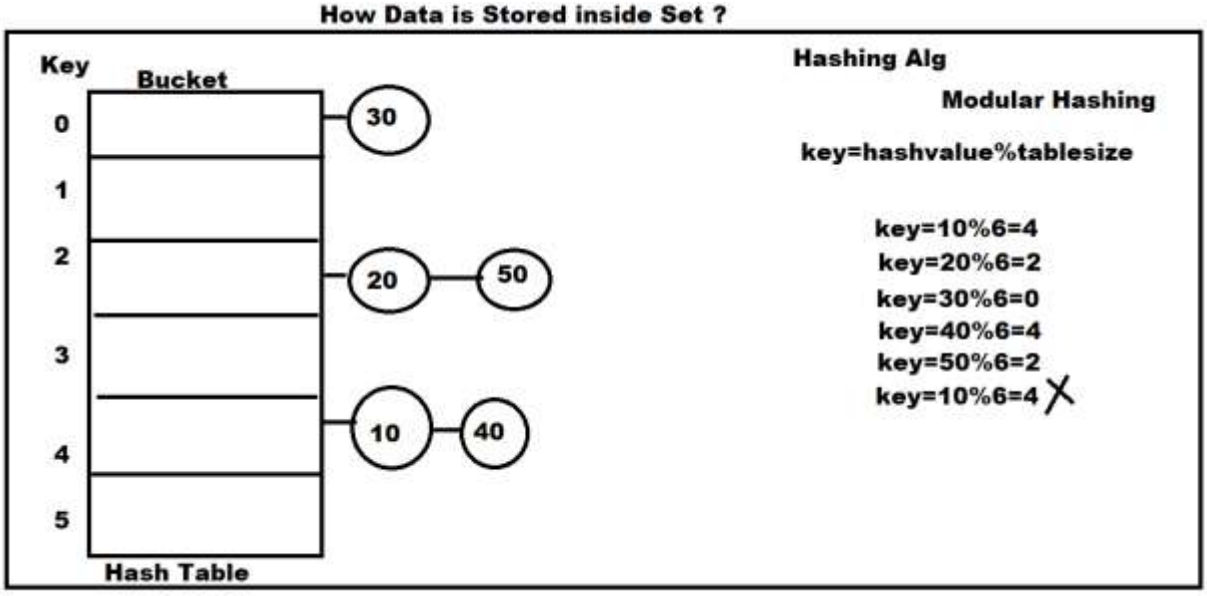
What is hash value?
Hash value is an integer value, which is used in hash based data structures for generating key.

How hash value is generated?
If two objects are equal according == operator they must generate same hash value.

How to find hash value of object?
hash() function is used to find hash value of object.

```
>>> a=10
>>> a
10
>>> b=10
>>> b
10
>>> a==b
True
>>> hash(a)
10
>>> hash(b)
10
>>> f1=1.5
>>> f2=1.5
>>> f1==f2
True
```

```
>>> hash(f1)
1152921504606846977
>>> hash(f2)
1152921504606846977
>>> s1="abc"
>>> s2="abc"
>>> s1==s2
True
>>> hash(s1)
-7276452887160293935
>>> hash(s2)
-7276452887160293935
>>> l1=[10,20]
>>> hash(l1)
Traceback (most recent call last):
  File "<pyshell#22>", line 1, in <module>
    hash(l1)
TypeError: unhashable type: 'list'
>>> t1=(10,20)
>>> hash(t1)
-487308837745106014 5
```



Mutable Operations of Set

1. add(): This function add an element within set

Example:

```
A=set()
print(A)
A.add(10)
A.add(20)
A.add(30)
A.add(40)
A.add(50)

print(A)
```

Output

```
set()
{40, 10, 50, 20, 30}
```

Example:

https://www.hackerrank.com/challenges/py-set-add/problem?isFullScreen=false

```
N=int(input())
A=set()

for i in range(N):
    stamp=input()
    A.add(stamp)

print(len(A))
```

Example

https://www.hackerrank.com/challenges/py-introduction-to-sets/problem?isFullScreen=true

```
def average(array):
    # your code goes here
```

```
    s=set(array)
    avg=sum(s)/len(s)
    return round(avg ,3)

if __name__ == '__main__':
    n = int(input())
    arr = list(map(int, input().split()))
    result = average(arr)
    print(result)
```

How to remove elements from set?

1. remove()
2. clear()
3. discard()
4. pop()