Set is mutable is collections, we can perform mutable operations using the following methods

add(*elem*)
Add element *elem* to the set.

```
>>> set1=set()
>>> print(set1)
set()
>>> set1.add(10)
>>> set1.add(20)
>>> set1.add(30)
>>> set1.add(40)
>>> set1.add(50)
>>> print(set1)
{40, 10, 50, 20, 30}
>>>
>>> set1.add(10,20)
Traceback (most recent call last):
  File "<pyshell#9>", line 1, in <module>
    set1.add(10,20)
TypeError: set.add() takes exactly one argument (2 given)
>>>
```

remove(*elem*)
Remove element *elem* from the set. Raises KeyError if *elem* is not contained in the set.

```
>>> print(email_set)
{'naresh@gmail.com', 'nit@nareshit.com', 'suresh@yahoo.com'}
>>> email_set.remove('naresh@gmail.com')
>>> print(email_set)
{'nit@nareshit.com', 'suresh@yahoo.com'}
>>> email_set.remove('naresh@gmail.com')
Traceback (most recent call last):
  File "<pyshell#17>", line 1, in <module>
    email_set.remove('naresh@gmail.com')
KeyError: 'naresh@gmail.com'
>>>
```

discard(*elem*)
Remove element *elem* from the set if it is present.

```
>>> set1={10,20,30,40,50}
>>> set1.discard(10)
>>> set1.discard(10)
>>> print(set1)
{50, 20, 40, 30}
>>>
```

pop()
Remove and return an arbitrary element from the set. Raises KeyError if the set is empty.

```
>>> set1={10,20,30,40,50}
>>> set1.pop()
50
>>> set1.pop()
20
>>>
```

clear()
Remove all elements from the set

```
>>> set1=set(range(10,110,10))
>>> print(set1)
{100, 70, 40, 10, 80, 50, 20, 90, 60, 30}
>>> set1.clear()
>>> print(set1)
set()
>>>
```

Example:
 # input string: abcabcd
 # output: 2a2b2c1d

```
str1=input("Enter any String") # abcabc
set1=set(str1) # {'a','b','c'}
```

```
output=""
for ch in set1:
    c=str1.count(ch)
    output=output+str(c)+ch

print(str1)
print(output)
```

Example:

```
# list1=[10,20,30,10,20,40,40,50]
# output: [(2,10),(2,20),(1,30),(2,40),(1,50)]

n=int(input("enter how many values"))
list1=[int(input()) for i in range(n)]
set1=set(list1)
list2=[]
for value in set1:
    c=list1.count(value)
    list2.append((c,value))

print(list1)
print(list2)
```

Output:

```
enter how many values8
10
10
20
20
30
40
50
50
[10, 10, 20, 20, 30, 40, 50, 50]
[(1, 40), (2, 10), (2, 50), (2, 20), (1, 30)]
>>>
```

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

```
n=int(input())
```

```
set1=set()
for i in range(n):
    stamps=input()
    set1.add(stamps)

print(len(set1))
```

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

```
n=int(input())
set1=set(map(int,input().split(" ")[:n]))
c=int(input())
for i in range(c):
    cmd=input().split(" ") # remove 10 ==> ["remove","10"]
    if cmd[0]=="remove":
        set1.remove(int(cmd[1]))
    elif cmd[0]=="discard":
        set1.discard(int(cmd[1]))
    elif cmd[0]=="pop":
        set1.pop()

print(sum(set1))
```