Delete elements or values from list

Python allows removing elements from list in different ways.

1. Using del keyword
2. Using remove method
3. Using pop method
4. Using clear method

del keyword

This keyword is used to delete one or more than one element from list.
This delete keyword required.

1. Index
2. Slicing

Using index it can able to delete one element.
Using slicing it is able to delete more than one element.

Example:

```
>>> list1=[10,20,30,40,50]
>>> del list1[0]
>>> print(list1)
[20, 30, 40, 50]
>>> del list1[2]
>>> print(list1)
[20, 30, 50]
>>> list2=list(range(10,110,10))
>>> print(list2)
[10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
>>> del list2[0:3]
>>> print(list2)
[40, 50, 60, 70, 80, 90, 100]
>>> del list2[-3:]
>>> print(list2)
[40, 50, 60, 70]
>>> del list2[1:-1]
>>> print(list2)
[40, 70]
>>> list3=list(range(10,110,10))
>>> print(list3)
[10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
>>> del list3[::2]
>>> print(list3)
```

[20, 40, 60, 80, 100]

Example:

```
# Example of deleting or removing element

list1=[1,2,3,4,1,8,5,6,7,1,2,3,1]
value=1
print(f'Before Deleting {list1}')
while True:
    if value in list1:
        i=list1.index(value)
        del list1[i]
    else:
        break

print(f'After Deleting {list1}')
```

Output:

```
Before Deleting [1, 2, 3, 4, 1, 8, 5, 6, 7, 1, 2, 3, 1]
After Deleting [2, 3, 4, 8, 5, 6, 7, 2, 3]
```

“in” or **membership operator** is used to search a giving value in collection of value. This operator returns True, if given value exists else False.

index(value) : index is a predefined function or method of list data type. This function return index value of given value.

remove(value/item)

It is a predefined method or function of list data type. This function is used to remove value from list using value. It remove first position of value. If value is not exists it generates error.

Example:

```
>>> coursesList=["java","python",".net","oracle","mysql"]
>>> coursesList.remove("java")
```

```
>>> coursesList.remove("java")
Traceback (most recent call last):
  File "<pyshell#22>", line 1, in <module>
    coursesList.remove("java")
ValueError: list.remove(x): x not in list
>>> list1=[1,2,3,4,1,2,3,4,1,2,3,4]
>>> list1.remove(2)
>>> print(list1)
[1, 3, 4, 1, 2, 3, 4, 1, 2, 3, 4]
```

Example:

```
# Python program to interchange first and last element in list'


list1=[10,20,30,40,50]
print(f'Before Swaping {list1}')
list1[0],list1[-1]=list1[-1],list1[0]
print(f'After Swaping {list1}')
```

Output:

```
Before Swaping [10, 20, 30, 40, 50]
After Swaping [50, 20, 30, 40, 10]
```

Given a list in Python and provided the positions of the elements, write a program to swap the two elements in the list.

Examples:

```
Input : List = [23, 65, 19, 90], pos1 = 1, pos2 = 3
Output : [19, 65, 23, 90]
Input : List = [1, 2, 3, 4, 5], pos1 = 2, pos2 = 5
Output : [1, 5, 3, 4, 2]
```

```
n=int(input("Enter how many values"))
list1=[]
for i in range(n):
    value=int(input("Enter value "))
    list1.append(value)

print(f'Before Swaping {list1}')
pos1=int(input("Enter Pos1 "))
```

```
pos2=int(input("Enter Pos2 "))
list1[pos1-1],list1[pos2-1]=list1[pos2-1],list1[pos1-1]

print(f'After Swaping {list1}')
```

Example:

```
# Write  a program to find length of list


list1=[10,20,30,40,50]

#1st method

c=0
for value in list1:
    c=c+1

print(f'Length is {c}')

# 2nd method
c=len(list1)
print(f'Length is {c}')
```

#Write a program to find sum of elements in the list

```
list1=[10,20,30,40,50]
# 1st method
s=0
for value in list1:
    s=s+value

print(f'{list1} sum is {s}')

#2nd method
print(f'{list1} sum is {sum(list1)}')
```

sum(iterable): It is a predefined function in python, this function return sum of elements exists within iterable (collection).

Example:

```
# Write a program to multiply all the numbers in list

list1=[1,2,3,4,5]

if len(list1)==0:
    print("List is empty ")
else:
    p=1
    for value in list1:
        p=p*value
    print(f'Result is {p}')
```

Output:

Result is 120

List is empty

We are given a list of numbers and our task is to write a Python program to find the smallest number in given list. For the following program we can use various methods including the built-in min method, sorting the array and returning the last element, etc.

Example:

Input : list1 = [10, 20, 4]
Output : 4

Input : list2 = [20, 10, 20, 1, 100]
Output : 1

```
list1=[10,20,4,8,9,3,7,1,2]
```

#1st approch

```
mvalue=list1[0]
```

```
for value in list1:
    if mvalue>value:
        mvalue=value

print(mvalue)
```

#2nd approch

```
mvalue=min(list1)
print(mvalue)
```

sort()

sort() is a method of list. This method sort elements in place. Sort method is mutable.

Syntax

```
sort(key=None,reverse=False)
```

Example:

```
>>> list1=[5,2,1,9,7,6,3,4,5]
>>> print(list1)
[5, 2, 1, 9, 7, 6, 3, 4, 5]
>>> list1.sort()
>>> print(list1)
[1, 2, 3, 4, 5, 5, 6, 7, 9]
>>> list1.sort(reverse=True)
>>> print(list1)
[9, 7, 6, 5, 5, 4, 3, 2, 1]
>>> list2=['c','e','d','a','A','B','E','f','C','D']
>>> print(list2)
['c', 'e', 'd', 'a', 'A', 'B', 'E', 'f', 'C', 'D']
>>> list2.sort()
>>> print(list2)
['A', 'B', 'C', 'D', 'E', 'a', 'c', 'd', 'e', 'f']
>>> list2.sort(key=str.upper)
>>> print(list2)
['A', 'a', 'B', 'C', 'c', 'D', 'd', 'E', 'e', 'f']
```

https://www.geeksforgeeks.org/python-programming-examples/