

Full stack web development using python

List

Part-1



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Agenda

- ① What is a list?
- ② How to create list object?
- ③ How to access list elements?
- ④ Concept of negative indexing
- ⑤ Accessing list elements via for loop
- ⑥ How to delete an element from a list?
- ⑦ How to edit an element of the list?
- ⑧ How to add more elements in the list?

list

- list is a class
- list is an iterable sequence
- list is mutable
- list is growable
- list can store heterogeneous data
- list elements are indexed

How to create list Object ?

l1 = [10, 20, 30] # Square brackets are used to denote a list

l2 = [] # empty list object

l3 = [50, 3.5, "abc"] # Heterogeneous elements

How to access list elements?

l1 = [50, 20, 80, 10, 60, 40]

print(l1) # [50, 20, 80, 10, 60, 40]

print(l1[0]) # 50

print(l1[1], l1[2]) # 20 80

0	1	2	3	4	5
50	20	80	10	60	40

Concept of negative Indexing

l1 = [50, 20, 80, 10, 60, 40]

-6	-5	-4	-3	-2	-1
0	1	2	3	4	5

50	20	80	10	60	40
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print (l1[-1]) # 40

print (l1[-2]) # 60

Accessing list elements via for loop

l1 = [50, 20, 80, 10, 60, 40]

0	1	2	3	4	5
50	20	80	10	60	40

for x in l1:

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    print(x, end=' ')
```

i=0

while i<=5:

```
    print(l1[i], end=' ')
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i+=1

How to delete an element from the list?

$l1 = [50, 20, 80, 10, 60, 40]$

-6 -5 -4 -3 -2 -1
0 1 2 3 4 5

50	20	80	10	60	40
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$\text{del } l1[2]$

-5 -4 -3 -2 -1
0 1 2 3 4

50	20	10	60	40
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How do edit an element of the list?

$l1 = [50, 20, 80, 10, 60, 40]$

-6	-5	-4	-3	-2	-1
0	1	2	3	4	5
50	20	80	10	60	40

$l1[2] = 45$

-6	-5	-4	-3	-2	-1
0	1	2	3	4	5
50	20	45	10	60	40

How to add more elements in the list?

l1 = [50, 20, 80, 10, 60, 40]

-6	-5	-4	-3	-2	-1
0	1	2	3	4	5
50	20	80	10	60	40

l1[6] = 70 # index error

listObject [invalidIndex] is an error

l1[5] = 70
l1[4] = 90 }

Not adding more values in the list
but only updating values at
index 5 and 4

There are two standard ways to add elements in the list:

- ① append()
- ② insert()

} attributes of list class

- Class is a group of variables and functions
- These variables and function are called attributes

listObject.append(value)

listObject.insert(index, value)

append method adds value at the end of the list, that is new element will become the last element of the list

l1 = [50, 20, 80, 10, 60, 40]

-6 -5 -4 -3 -2 -1
0 1 2 3 4 5

50	20	80	10	60	40
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l1.append(70)

-7 -6 -5 -4 -3 -2 -1
0 1 2 3 4 5 6

50	20	80	10	60	40	70
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$l1 = [50, 20, 80, 10, 60, 40]$

-6	-5	-4	-3	-2	-1
0	1	2	3	4	5
50	20	80	10	60	40

$l1.insert(-5, 70)$

-7	-6	-5	-4	-3	-2	-1
0	1	2	3	4	5	6
50	70	20	80	10	60	40

$l1.insert(index, value)$

if $index > \text{last index}$ then value will store at $\text{last index} + 1$ only(append) .