

List

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In [ ]: """
1.List Vs Array
2.Create
3.Access

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4.Edit
5.Add -->Add(append,extend,insert)
6.Delete -->Delete(pop,clear,remove)

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7.Operations

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8.Functions --> len min max sorted

"""
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1.List vs Array

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In [ ]: """
s1 = "Vishal"
s2 = "Ajay"
s3 = "Nita"

Array -->

s = ["Vishal","Ajay","Nita"]

Index : 0

print(s[1]) = Ajay

Array:---> Array can store data of similar datatype(Homogeneous) | Array is fast
List :---> List can store data of different datatypes(Heterogeneous) | List is flexible
"""
```

Create

```
In [5]: #Empty List
l1=[]
print("Datatype of l1",type(l1))

#homogeneous List:
l2 = [25,18,19,20,23,28] #int
print("homogeneous List:",l2)

#Heterogeneous List
l3= ["Vishal",28,"Data Analysis",25.5,"M"]
print("Heterogeneous List:",l3)

#Multi-Dimensional list
l4 = [1,2,3,[4,5]] #2D list

print("2D list:",l4)
```

```
Datatype of l1 <class 'list'>
homogeneous List: [25, 18, 19, 20, 23, 28]
Heterogeneous List: ['Vishal', 28, 'Data Analysis', 25.5, 'M']
2D list: [1, 2, 3, [4, 5]]
```

Access

```

In [9]: 12 = [25,18,19,20,23,28]
#         0  1  2  3  4  5
#        -6 -5  -4  -3  -2  -1

print("78 Number using positive index:",12[4])
print("19 Number using Negative index:",12[-4])

13 =["Vishal",28,"Data Analysis",25.5,"M"]

print("Student Name:",13[0], "Student Gender", 13[-1])

14 = [1,2,3,[4,5]]
#     0 1 2   3
#           0 1

print("At Index 3 value is:",14[3])
print("How we can print 5 from list 14:",14[3][1])
print()

15= [[1,2],[3,4],[5,6]]
print(15[1])
print(15[0][-2])

```

```

78 Number using positive index: 23
19 Number using Negative index: 19
Student Name: Vishal Student Gender M
At Index 3 value is: [4, 5]
How we can print 5 from list 14: 5

```

```

[3, 4]
1

```

Edit

```

In [10]: s1 = "Vishal"
s1[0] = "B"

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TypeError                                Traceback (most recent call last)
Cell In[10], line 2
      1 s1 = "Vishal"
----> 2 s1[0] = "B"

TypeError: 'str' object does not support item assignment

```

```
In [11]: #List is mutable datatype
l1 = [25,23,26,27,21,28]

l1[0] = 30

print("l1 after changing value:", l1)

l3 = ["Vishal",28,"Data Analysis",25.5,"M"]
l3[0:3] = ["Anuja",27,"Data Science"]

print(l3)

l5= [[1,2],[3,4],[5,6]]
l5[2][0] = 15
print(l5)
```

l1 after changing value: [30, 23, 26, 27, 21, 28]
 ['Anuja', 27, 'Data Science', 25.5, 'M']
 [[1, 2], [3, 4], [15, 6]]

Add --> append, extend, insert

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In [13]: s = ["Vishal","trupti","Akshay","Anuja","Sainath"]

print("Before Using Append:",s)

s.append("Abhijeet") # single data at a time

print("After using Append",s)

print()

s.extend(["Siddhart","Apurva"]) # extend will add Multiple data at a time
print("After using extend",s)

print()

s.insert(0,"Ajay") #index,value
print("After using insert",s)
```

Before Using Append: ['Vishal', 'trupti', 'Akshay', 'Anuja', 'Sainath']
 After using Append ['Vishal', 'trupti', 'Akshay', 'Anuja', 'Sainath', 'Abhijeet']

After using extend ['Vishal', 'trupti', 'Akshay', 'Anuja', 'Sainath', 'Abhijeet', 'Siddhart', 'Apurva']

After using insert ['Ajay', 'Vishal', 'trupti', 'Akshay', 'Anuja', 'Sainath', 'Abhijeet', 'Siddhart', 'Apurva']

Delete --> pop , clear , remove

```
In [14]: l3 = ["Vishal",28,"Data Analysis",25.5,"M"]
l3.pop() # this function will remove last element from list

print(l3)

l3.remove("Data Analysis") #this will remove specific element

print(l3)

l3.clear()

print(l3)

['Vishal', 28, 'Data Analysis', 25.5]
['Vishal', 28, 25.5]
[]
```

In []: