

▼ List Inbuilt Functions

```
# max
# count
# searching => finding idx of first index
```

▼ Max, Min, Sum

```
l = [4, 5, 2, 1, -1, 3]
```

```
x = max(l)
print(x)
```

5

```
y = min(l)
print(y)
```

-1

```
z = sum(l)
print(z)
```

14

▼ Quiz - 1

```
nums = [12, 2, 1, 22, 23, 36]
print(max(nums), end=' ')
print(min(nums), end=' ')
print(sum(nums), end=' ')
```

36 1 96

▼ Search, Count

```
l = [4, 5, 2, 1, -1, 3]
```

```
l2 = [1, 1, 1, 1, 11]
```

```
x = l.count(5)
y = l2.count(1)
```

```
print(x)
print(y)
```

```
1
4
```

```
# y = count(1)
```

```
l = [1, 1, 1, 2, 2, 2, 3, 3]
print(l.count(1))
```

```
3
```

```
l = [4, 5, 2, 1, -1, 3]
print(l.index(1))
```

```
3
```

```
l = [4, 5, 2, 1, -1, 3, 1]
print(l.index(1))
```

```
3
```

▼ Quiz - 2

```
nums = [12, 2, 1, 22, 22, 23, 36]
print(nums.count(4), end=' ')
print(nums.count(22), end=' ')
print(nums.index(1), end=' ')
```

```
0 2 2
```

```
# x = nums.index(99) # exception handling
# if the value is not present => error is thrown
```

```
x = nums.count(99)
```

```
print(x)
# count = 0 => value not present
```

0

```
a = 3
a += 2
a -= -1
a *= 2
a == 5
```

False

```
for i in range(1, 5):
    print(i, end=' ')
```

1 2 3 4

```
nums = [12, 2, 1, 22, 22, 23, 36]
```

```
x = 12 in nums
y = 13 in nums
```

```
print(x)
print(y)
```

True
False

▼ Reversal of a list

```
l = [1, 2, 3, 4, 5]

print(l[::-1]) # the concept of list slicing

[5, 4, 3, 2, 1]
```

▼ Logical Approach (your own logic)

```
l = [99, 55, 67, 88, 23]

res = []
for i in range(len(l) - 1, -1, -1):
    # print(i, end=' ')
```

```
print(l[i], end=' ')
res.append(l[i])

print()
print(res)

23 88 67 55 99
[23, 88, 67, 55, 99]
```

▼ Inbuilt Function

```
l = [4, 2, 3, 1, 5]
l.reverse() # reverse the existing list l

print(l)

[5, 1, 3, 2, 4]
```

▼ Quiz - 3

```
l = [1, 2, 3, 4]
l.reverse()
l.append(5)
print(l)

[4, 3, 2, 1, 5]
```

▼ List Slicing

```
runs = [0, 1, 100, 99, 66, 87, 99, 100, 66]

print(runs[:5])

[0, 1, 100, 99, 66]

runs = [0, 1, 100, 99, 66, 87, 99, 100, 66]

print(runs[-5:])

[66, 87, 99, 100, 66]
```

▼ Quiz

```
nums = [1, 1, 2, 3, 5, 8, 13]
print(nums[:5])
```

```
[1, 1, 2, 3, 5]
```

```
x = sum(nums[:5])
print(x)
```

```
12
```

```
x = max(nums[:5])
print(x)
```

```
5
```

```
x = max(nums[:1])
print(x)
```

```
1
```

```
print(nums[:5])
print(type(nums[:5]))
```

```
[1, 1, 2, 3, 5]
<class 'list'>
```

```
nums = [1, 1, 2, 3, 5, 8, 13]
x = nums[:5]
```

```
print(nums)
print(x)
```

```
[1, 1, 2, 3, 5, 8, 13]
[1, 1, 2, 3, 5]
```

► Examples: First 5

```
[ ] ↪ 4 cells hidden
```

▼ Examples: Last 5

```
# 0  1  2  3  4  5  6
# -7 -6 -5 -4 -3 -2 -1
nums = [5, 1, 2, 7, 6, 3, 4]

print(nums[-5:])

[2, 7, 6, 3, 4]

print(list(range(-5, 0, 1)))

print(nums[-5:0:1]) # why not giving the last 5 elements?

print(nums[-5:-1:1])

print(nums[-5:7:1])

[-5, -4, -3, -2, -1]
[]
[2, 7, 6, 3]
[2, 7, 6, 3, 4]

nums = [5, 1, 2, 7, 6, 3, 4]

print(list(range(-5, 0)))
print(nums[-5:0])

print(nums[-5:len(nums)]) # len(nums) = 7, nums[-5:7]

[-5, -4, -3, -2, -1]
[]
[2, 7, 6, 3, 4]

print(list(range(-5)))

print(nums[-5:]) # end = length of the list, inc = +1

[]
[2, 7, 6, 3, 4]
```

▼ Quiz

nums = [0, 25, 50, 75, 100] The result of evaluating nums[0:5:2] is [25, 75].

```
nums = [0, 25, 50, 75, 100]

print(nums[0:5:2])
```

```

[0, 50, 100]

print(nums[:5:2]) # default start = 0

[0, 50, 100]

print(nums[::2]) # default start = 0, default end = len(l)

[0, 50, 100]

# 0  1  2  3  4  5  6
# -7 -6 -5 -4 -3 -2 -1
nums = [5, 1, 2, 7, 6, 3, 4]

print(nums[::2])

[5, 2, 6, 4]

# 0  1  2  3  4  5  6
# -7 -6 -5 -4 -3 -2 -1
nums = [5, 1, 2, 7, 6, 3, 4]

print(nums[1:len(nums):2])
print(nums[1::2])

[1, 7, 3]
[1, 7, 3]

```

▼ Quiz

```

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

print(l[0:-1])

[1, 2, 3, 4]

```

▼ Rotate

```

l = [1, 2, 3, 4, 5, 6, 7, 8]

print(l[:-1]) # all elements except 8

print(l[-1:]) # get the last one element

```

```
# print(l[-1]) # this is an integer
print()

print(l[-1:] + l[:-1])

    [1, 2, 3, 4, 5, 6, 7]
    [8]

    [8, 1, 2, 3, 4, 5, 6, 7]


nums = [1, 2, 3]
nums2 = [4, 5, 6]

res = nums + nums2
print(res)

    [1, 2, 3, 4, 5, 6]


nums = [1, 2, 3] # bag having 3 items
nums.append([4, 5]) # put another bag inside it
print(nums)

print(len(nums))

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


print(nums[0])
print(nums[1])
print(nums[2])
print(nums[3])

    1
    2
    3
    [4, 5]


print(nums[3][0])
print(nums[3][1])

    4
    5
```

▼ 2d List

```
l = []
l.append([1, 2, 3, 4])
```



```
l.append([5, 6, 7, 9])
l.append([9, 10, 11, 12])

print(l)

[[1, 2, 3, 4], [5, 6, 7, 9], [9, 10, 11, 12]]
```

▼ Quiz

```
l = [1, 2]
l.append(0)
l.append(3)
l = l + [3]
print(l)

[1, 2, 0, 3, 3]
```

▼ Extend

```
## Extend: add one by one to the list

nums = [1, 2, 3]
nums.extend([4, 5])

print(nums)

[1, 2, 3, 4, 5]
```

▼ Doubts

```
l = [1, 2, 3, [4, 5]] # reversing the entire list

# res = [[5, 4], 3, 2, 1]
res = l[::-1]

l = [1, 2, [3, [4, 5]], [6, 7], [8, 9]]

# ans = [[9, 8], [7, 6], [[5, 4], 3], 2, 1]

nums = [1, 2, 3]
print(nums[-1:len(nums):1])

[3]
```

