**slice:**

We create a sublist of a list by specifying a range of indices.

Semantically specifying the slice is similar to that of range function.

But syntactically, it is different.

The result of slicing is a new list.

The examples are self explanatory.

# file 1\_slice.py

# indices:

# 0 1 2 3 4 5 6

b = [12, 23, 34, 45, 56, 67, 78]

print(b[2:5]) # [34, 45, 56]

print(b[:5]) # b[0:5] # [12, 23, 34, 45, 56]

print(b[2:]) # b[2:len(b)] # [34, 45, 56, 67, 78]

print(b[2:6:2]) # init : 2, final value one past the end : 6; step 2 # [34, 56]

print(b[::2]) # init : 0, final value one past the end : len(list); step : 2

# [12, 34, 56, 78]

print(b[::-1]) # reverse the elements of the list # [78, 67, 56, 45, 34, 23, 12]

print("what : ", b[:5:-1]) # what : [78]

Let us try a couple of examples based on slicing of lists.

**Example: find the biggest**

# file : 2\_biggest.py

# find the biggest

# algorithm:

# assume the first element in index 0 as the biggest

# walk thro the remaining elements of the list.

# compare and update big if necessary.

# output biggest

a = [22, 44, 11, 55, 33]

big = a[0]

for e in **a[1:]:** # observe : all elements but for the 0th element

if e > big :

big = e

print("biggest : ", big)

**Example: find the total of a slice**

# file : 3\_find\_total.py

# find the total of a batsman

# list contains the name of the batsman and his scores in # of innings

# find the total score of Kohli

scores = [ "kohli", 0, 82, 25, 120, 76]

total = 0

for e in **scores[1:]:**

total += e

print("total : ", total)

$ python 3\_find\_total.py

total : 303

**assignment of slice:**

**When we use to the left of assignment,**

**a) all the elements in that slice will be removed**

**b) all the elements on the right will replace them**

Note :

**1. The right hand side should signify # of elements. It should be an iterable.**

**2. Number of elements on either side need not be same.**

Observe the outputs and comments after each assignment.

# file : 4\_slice\_assignment.py

# assignment of slice

a = [ 10, 20, 30, 40, 50, 60]

# remove the elements on the left

# replace by the elements on the right

a[2:4] = [100, 200] #right hand side(rhs) should be iterable

print(a)

# [10, 20, 100, 200, 50, 60]

a = [ 10, 20, 30, 40, 50, 60]

a[2:4] = [1000, 2000, 3000, 4000]

print(a) # list has become bigger

# [10, 20, 1000, 2000, 3000, 4000, 50, 60]

a = [ 10, 20, 30, 40, 50, 60]

a[2:4] = [] # list has become smaller

print(a)

# [10, 20, 50, 60]

a = [ 10, 20, 30, 40, 50, 60]

a[2:4] = "pesu" # str is iterable

print(a)

# [10, 20, 'p', 'e', 's', 'u', 50, 60]

a = [ 10, 20, 30, 40, 50, 60]

a[2] = "fool" # a[2] is not a slice;

print(a)

#[10, 20, 'fool', 40, 50, 60]

a = [ 10, 20, 30, 40, 50, 60]

a[2:3] = "fool" #a[2:3] is a slice

print(a)

# [10, 20, 'f', 'o', 'o', 'l', 40, 50, 60]