

DS2000

10/1 - Tues.

Admin

- mini exam #1 Fri

- HW3 at Friday, due 10/11 9pm

Agenda

1. Loop Summary

2. Iterating

3. Python

0. Review

lst = [12, 10, -1]

x = lst[1] * 2

lst[2] = 18

lst[3] = -1

lst.append(-1)

values

12, 10, -1

positions

0, 1, 2

what's in x?

20

what's in lst?

12, 10, 18

what happens?

error ¹⁵/₇

what's in lst?

12, 10, 18, -1

1. Loop Summary

for - repeats

For loops are shortcuts

for line in infile:

Shortcut for:

line = infile.readline()

line = infile.readline()

line = infile.readline()

⋮

until EOF

for i in range(4):

Shortcut for:

i = 0

i = 1

i = 2

i = 3

⋮
4 times

for num in lst:

Shortcut for:

num = 12

num = 10

num = 18

num = -1

⋮

until end of list

Back to lists...

u, u, ~
~.CSV

↳ line in CSV file → into a list

with open("file.csv", "r") as int:

line = int.readline()

lst = line.split(",")

check-in question

var = 12

print(var * 2) 24

print(var) 12

↳ var value doesn't change
only changes when var = _____

lst = [~, ~, ~] & strings!

follow-up, related question

lst = [2, 4, 6]

num = lst[1]

num = num * 2

↳ what's in lst? [2, 4, 6]

what's in num? 8

imitation of Friday's loop!

lst = ['2', '4', '6']

for num in lst: ~~'2'~~ ~~'4'~~ ~~'6'~~

num = int(num) ~~2~~ ~~4~~ ~~6~~

↳ what's in lst? ['2', '4', '6']

what's in num? 6

takeaway: for num in lst doesn't modify the list ;

2. List Iteration

↳ for num in lst ~ iteration by value

- can't modify list
- one list at a time

to the rescue! iteration by position

↳ look at every position one at a time

0, 1, 2, ...

for i in range(4):

i=0

i=1

i=2

i=3

lst = [_, _, _, _]
0 1 2 3

ex) turn a list of strings into
list of ints

• How long is list?

len(lst)

• $lst[m] = _$

to modify $lst[m]$

lst = ['2', '4', '6']

for i in range(len(lst)):

lst[i] = int(lst[i])

~~~~~ shortcut for... ['2', '4', '6']

i=0

lst[i] = int(lst[i]) [2, '4', '6']

i=1

lst[i] = int(lst[i]) [2, 4, '6']

i=2

lst[i] = int(lst[i]) [2, 4, 6]

Today's Car Fix

2010, 2019, ...

1777, 2439, ...

4233, 4429, ...

years

khary

Dmsb

↳ each line  
becomes a list

Khary vs. Dmsb in second year of data?

khary[2] vs. dmsb[2]

Corresponding data in  
2 lists, same position

for num in lst for i in range(len(khary)):

!!  
↑

!!  
↑

iteration by position:

- modify a list

- iterate over 2 lists