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1 # Some simple functions using lists as parameters.
2
3 # Print each individual element of a list on its own line.
4 def print_one_per_line(li):
5     for val in li:
6         print(val)
7
8 # Return the number of even integers in the list.
9 def count_evens(li):
10     evens = 0
11     for val in li:
12         if val % 2 == 0:
13             evens += 1
14     return evens
15
16 # Return the number of strings of length 4 or greater in the list.
17 def long_strings(li):
18     long = 0
19     for st in li:
20         if len(st) >= 4:
21             long += 1
22     return long
23
24 # Print the list in reverse order
25 def print_reverse(li):
26     index = len(li) - 1
27     while index >= 0:
28         print(li[index])
29         index -= 1
30
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1 # Lists are "mutable" -- they can be mutated, or changed, both by
2 # changing individual indices, or by adding or removing values.
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4 faculty = ["Bo", "Frank", "Alvaro", "Birgit"]
5 print(faculty)
6
7 # We've already seen this:
8 faculty[0] = "Mehrdad"
9
10 # This is called "mutation". It changes one aspect of the variable faculty,
11 # but doesn't create a brand new object. faculty still points to the same
12 # object it used to point to, but that object has mutated.
13
14
15 # Other means of mutating lists:
16
17 # .append(x): given a new value x, add x to the end of the list.
18 faculty.append("Anthony")
19 print(faculty)
20
21 # faculty now has 5 elements, and has been mutated by appending the new value.
22
23
24 # This might seem similar to the following code:
25 x = 10
26 print(x)
27 x = 20
28 print(x)
29
30 # That might look like mutation, because x changed from 10 to 20... but it's
31 # not! The = means that we have *reassigned* x, not *mutated* it. x used to
32 # point to the object "10"; now it points to a different object "20".
33 # This is subtle, but important, and we'll cover it again later.
34
35
36 # .remove(x): find the first element equal to x, and remove it from the list
37 faculty.remove("Frank")
38 print(faculty)
39
40
41 # .pop(): remove the last item in the list
42 faculty.pop()
43 print(faculty)
44
45
46 # .pop(i): remove the item at index i
47 faculty.pop(0)
48 print(faculty)
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51 # .insert(i, x): insert x into the list before index i
52 faculty.insert(1, "Neal")
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53 print(faculty)
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1 # doubleList: returns the same list as given, but with each element duplicated
2 # doubleList([1, 2, 3]) -> [1, 1, 2, 2, 3, 3]
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4 def doubleList(li):
5     answer = []
6     for x in li:
7         answer.append(x)
8         answer.append(x)
9
10    return answer
11
12
13
14 # listContains: true if the list contains a given value
15 # listContains([1, 2, 3], 2) -> True
16 # listContains([1, 2, 3], 5) -> False
17
18 def listContains(li, val):
19     for x in li:
20         if x == val:
21             return True
22
23     return False
24
25 # listEquals: true if the two lists have the same values in the same order.
26 # listEquals([1, 2, 3], [1, 2]) -> False
27 def listEquals(li1, li2):
28     if len(li1) != len(li2):
29         return False
30
31     i = 0
32     while i < len(li1):
33         if li1[i] != li2[i]:
34             return False
35         i += 1
36
37     return True
38
39 # isSorted: true if the list is sorted in nondecreasing order
40 # isSorted([1, 2, 3]) -> True
41 # isSorted([0, 0, 0, 0, 0]) -> True
42 # isSorted([1, 2, 4, 3, 5]) -> False
43
44 def isSorted(li):
45
46     i = 0
47     while i < len(li) - 1:
48         if li[i] > li[i + 1]:
49             return False
50
51     i += 1
52     return True
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73 `print(isSorted(["hello", "jonathan", "long beach"]))`

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