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Exercise 2

Finger Exercises due Aug 5, 2020 20:30 -03

Exercise 2

1/1 point (graded)

ESTIMATED TIME TO COMPLETE: 5 minutes

Here is some code for linear search that uses the fact that a set of elements is sorted in increasing order:

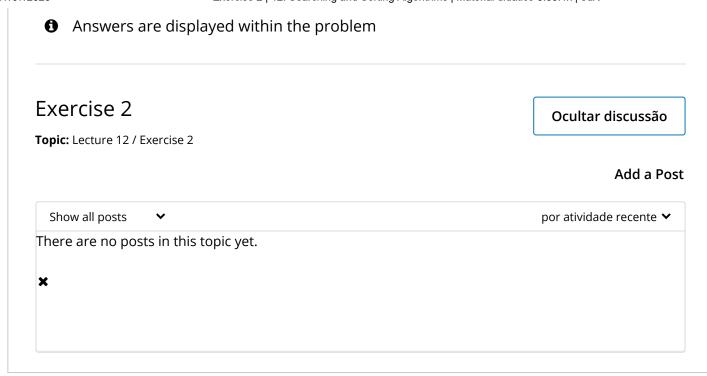
```
def search(L, e):
    for i in range(len(L)):
        if L[i] == e:
            return True
        if L[i] > e:
            return False
    return False
```

Consider the following code, which is an alternative version of search.

```
def search1(L, e):
    for i in L:
        if i == e:
            return True
        if i > e:
            return False
    return False
```

Which of the following statements is correct? You may assume that each function is tested with a list L whose elements are sorted in increasing order; for simplicity, assume L is a list of positive integers.

search and search1 return the same answers.
search and search1 return the same answers provided L is non-empty.
search and search1 return the same answers provided L is non-empty and e is in L.
search and search1 do not return the same answers.
search and search1 return the same answers for lists of length 0 and 1 only.
Explanation: It is equally valid to iterate over the indicies of a list (as in search) or iterate over the elements of the list itself (as in search1). As we've seen, Python's for statement iterates over the items of any sequence (a list or a string), in the order that they appear in the sequence. As an example, assume L = [4, 9, 2]. The statement
for i in range(len(L)):
is <i>actually</i> the statement
for i in range(3):
which is <i>actually</i> the statement
for i in [0, 1, 2]:
So iterating over the indicies of a list (as in search) is almost identical to iterating over the elements of the list itself - the statement
for i in L:
is <i>actually</i> the statement
for i in [4, 9, 2]:
Both methods of iteration are equally valid. At the end of the day, you should iterate in a way that makes sense to you.
Fnviar



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