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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 *actually* the statement

```
for i in range(3):
```

which is *actually* 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 *actually* 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.

Enviar

Answers are displayed within the problem

Exercise 2

Topic: Lecture 12 / Exercise 2

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