



[Curso](#) > [Week 6...](#) > [11. Co...](#) > [Exercis...](#)

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Exercise 1

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

Exercise 1

5/5 points (graded)

ESTIMATED TIME TO COMPLETE: 10 minutes

Here is some code from lecture:

```
def linearSearch(L, x):  
    for e in L:  
        if e == x:  
            return True  
    return False
```

Choose which of the following inputs to `linearSearch` would give the best case, average case, or worst case run time.

1. Best Case Run Time

☐ `linearSearch([14, 15, 6, 27, 13, 16, 25, 11, 7], 15)`

☐ `linearSearch([21, 1, 25, 22, 30, 13, 7, 24, 12], 24)`

☒ `linearSearch([20, 10, 1, 7, 4, 22, 25, 12, 31], 20)`

☐ `linearSearch([9, 3, 12, 24, 7, 8, 23, 11, 19], 8)`



☐ linearSearch([4, 12, 20, 17, 9, 14, 7, 24, 6], 7)

☐ linearSearch([13, 9, 22, 3, 10, 17, 11, 2, 12], 26)



2. Worst Case Run Time

☐ linearSearch([14, 15, 6, 27, 13, 16, 25, 11, 7], 15)

☐ linearSearch([21, 1, 25, 22, 30, 13, 7, 24, 12], 24)

☐ linearSearch([20, 10, 1, 7, 4, 22, 25, 12, 31], 20)

☐ linearSearch([9, 3, 12, 24, 7, 8, 23, 11, 19], 8)

☐ linearSearch([4, 12, 20, 17, 9, 14, 7, 24, 6], 7)

☒ linearSearch([13, 9, 22, 3, 10, 17, 11, 2, 12], 26)



3. Average Case Run Time

☐ linearSearch([14, 15, 6, 27, 13, 16, 25, 11, 7], 15)

☐ linearSearch([21, 1, 25, 22, 30, 13, 7, 24, 12], 24)

☐ linearSearch([20, 10, 1, 7, 4, 22, 25, 12, 31], 20)

☒ linearSearch([9, 3, 12, 24, 7, 8, 23, 11, 19], 8)

☐ linearSearch([4, 12, 20, 17, 9, 14, 7, 24, 6], 7)

☐ linearSearch([13, 9, 22, 3, 10, 17, 11, 2, 12], 26)



4. What is the number of steps it will take to run `linearSearch` in the best case? Express your answer in terms of n , the number of elements in the list `L`.

Indicate addition and multiplication explicitly, with `+` and `*` symbols. Indicate exponentiation with the caret (`^`) symbol.

1 ✓

1

5. What is the number of steps it will take to run `linearSearch` in the worst case? Express your answer in terms of n , the number of elements in the list `L`.

Indicate addition and multiplication explicitly, with `+` and `*` symbols. Indicate exponentiation with the caret (`^`) symbol.

$2 \cdot n + 1$ ✓

$2 \cdot n + 1$

Reminder: You do not lose points for trying a problem multiple times, nor do you lose points if you hit "Show Answer". If this problem has you stumped after you've tried it a few times, feel free to reveal the solution.

Click the "Reset" button to clear your answers.

Enviar

✓ Correct (5/5 points)

Exercise 1

Topic: Lecture 11 / Exercise 1

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Can someone explain #4

question posted about 7 hours ago by anônimo



I don't understand why the answer is 1.



This post is visible to everyone.

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1 response

abhinav vikram

about 7 hours ago



Arguably when the list L is empty.

L is empty --> directly returns False without looping through L (CHECK THE "SHOW ANSWER" section)



posted about 6 hours ago by **leopold bernard leo**

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