Inputs and Outputs

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Not shared

* Indicates required question

Explain each step of the program. * 3 points

```
from botcore import *
from time import sleep

delay = 0.5
n_led = 0

while True:
    leds.user_num(n_led, True)
    sleep(delay)
    leds.user_num(n_led, False)
    sleep(delay)

    n_led = n_led + 1
    if n_led == 8:
        n_led = 0
```

Your answer

Request edit access

Explain each step of the program. * 3 points

```
from botcore import *
from time import sleep

n_guests = 0

while True:

    if buttons.was_pressed(0):
        leds.ls_num(n_guests, True)
        n_guests = n_guests + 1

        if n_guests == 5:
            break
```

Your answer

The program below "debounces" a button. Explain the original bug, and how this software solution fixes it. * 2 points

```
if buttons.was_pressed(0):
    spkr.pitch(440)
    sleep(delay)
    spkr.off()

    buttons.was_pressed(0)

    leds.ls_num(n_guests, True)
    n_guests = n_guests + 1

    if n_guests == 5:
        break
```

Your answer

Explain each step of the program. * 3 points

```
from botcore import *
from time import sleep
motors.enable(True)
motors.run(LEFT, 50)
motors.run(RIGHT, -50)
sleep(1.0)
motors.enable(False)
```

Your answer

How can you make this program detect a dark line against a light background? * 1 point

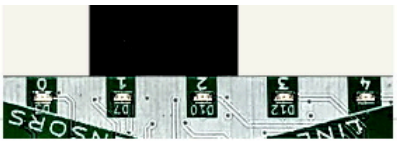
```
from botcore import *

threshold = ___   # Your observed value

while True:
    val = ls.read(0)
    is_detected = val < threshold
    leds.ls_num(0, is_detected)
```

- ◯ Set the "threshold" to a higher value
- ◯ Use a different LED function
- ◯ Use ">" instead of "<" comparison.

Answer the questions below based on the debug panel shown.



LOCAL VARIABLES		
detected	[True, False, False, True, True]	<list>
n_sens	4	<int>
thresh	2500	<int>
val	1764	<int>

What is the value of detected [4] ? * 1 point

- ◯ True
- ◯ False
- ◯ 4
- ◯ 2500
- ◯ 1764
- ◯ n_sens

An obvious problem above is that detected bool values are inverted. How can you modify the code so that detected [1] and [2] are True and the rest are False? * 2 points

Your answer

What is the threshold variable set to? * 1 point

- ○ True
- ○ False
- ○ 4
- ○ 2500
- ○ 1764

What line sensor value was returned? * 1 point

- ○ True
- ○ False
- ○ 4
- ○ 2500
- ○ 1764

Which indexed values match the picture below? 1 point

vals == (False | True | True | False | False)

index →	0	1	2	3	4

- vals == (1, 0, 0, 1, 1)
- vals == (0, 0, 0, 1, 1)
- vals == (0, 0, 1, 1, 0)
- vals == (0, 1, 1, 0, 0)

What is the value of speeds [4]? * 1 point

```
speeds = (-32, 73, 88, 95)
```

- -32
- 73
- 88
- 95
- That index is out of range.

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What is abs (speeds [0])? *

1 point

```
speeds = (-32, 73, 88, 95)
```

- -32
- 73
- 88
- 95
- 32

Next

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