

CS 145 Day 8 activity – tracing loops

Solution

For each problem, fill in one row per pass through the loop, then write what the code returns or prints. Use a dash if a variable has no value yet.

- Trace `count_e("eel")` for each version.

Version A

```
def count_e(word):
    total = 0
    for ch in word:
        if ch == "e":
            total += 1
    return total
```

ch	total
before loop	0
"e"	1
"e"	2
"l"	2

Returns: 2

Version B

```
def count_e(word):
    for ch in word:
        total = 0
        if ch == "e":
            total += 1
    return total
```

ch	total
before loop	—
"e"	1
"e"	1
"l"	0

Returns: 0

- Trace `doubles([3, 1, 4])`.

```
def doubles(nums):
    result = []
    for num in nums:
        if num > 2:
            result.append(num * 2)
    return result
```

num	num > 2	result
before loop	—	[]
3	True	[6]
1	False	[6]
4	True	[6, 8]

Returns: [6, 8]

- Trace this code.

```
nums = [4, 7, 1]
for i in range(len(nums)):
    nums[i] = nums[i] + i
print(nums)
```

i	nums[i] + i	nums
before loop	—	[4, 7, 1]
0	4 + 0 = 4	[4, 7, 1]
1	7 + 1 = 8	[4, 8, 1]
2	1 + 2 = 3	[4, 8, 3]

Prints: [4, 8, 3]