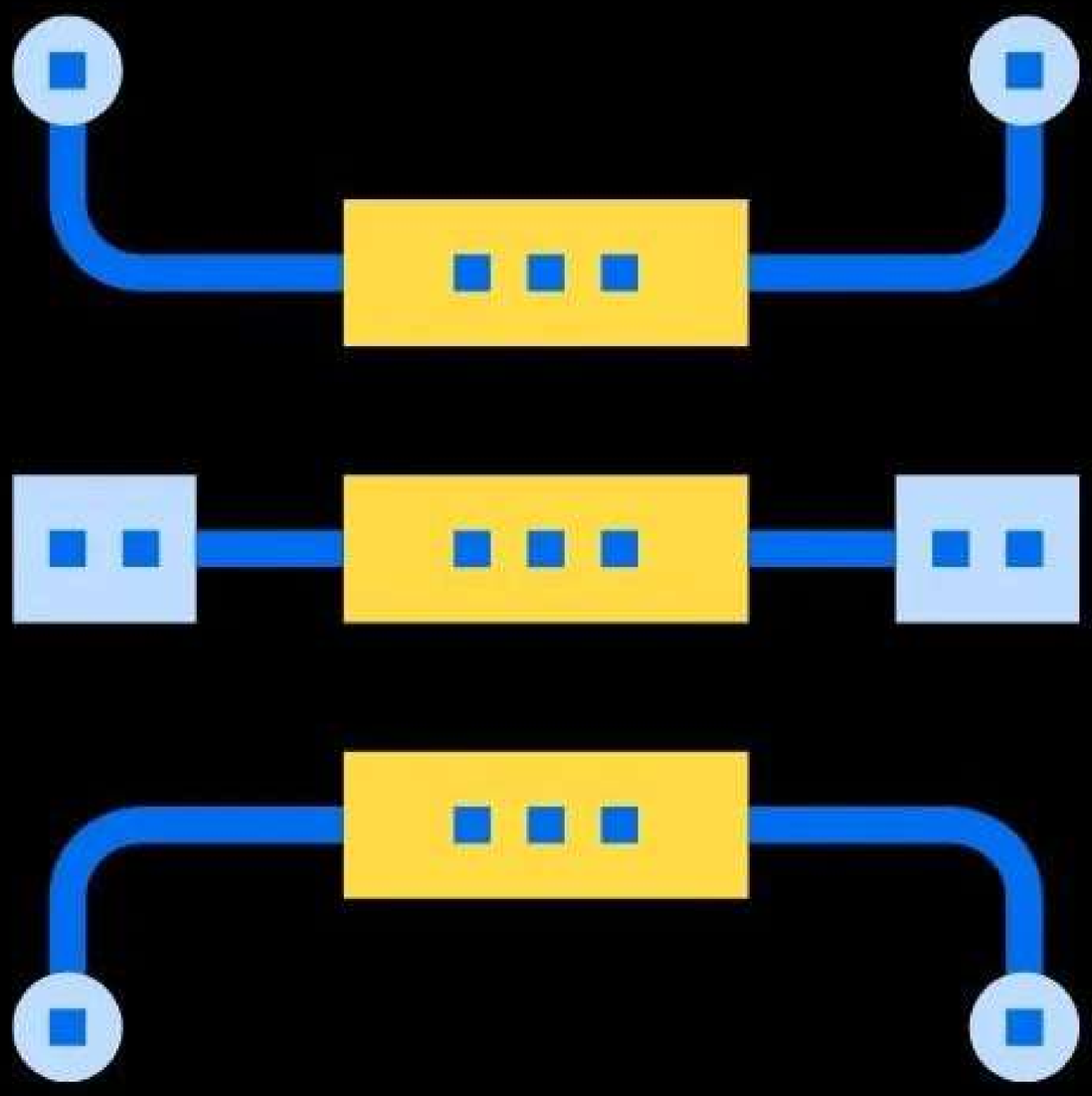
Why Indexes Start From 0



@ITCHALLENGES

SWIPE >>>

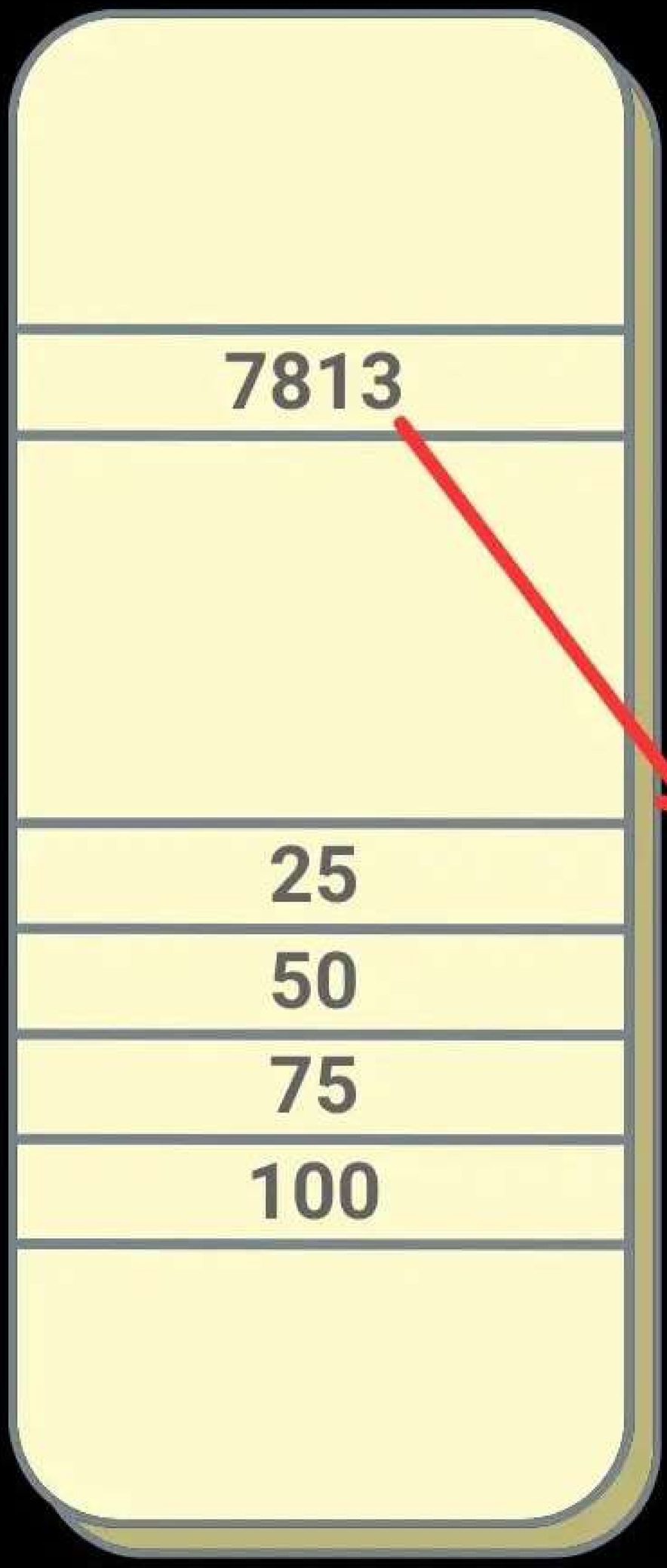
As you probably already know, **array indexes** start at 0 in almost all major programming languages.

```c
int n[] = {25, 50, 75, 100};
printf("%d", n[0]); // Output: 25
printf("%d", n[1]); // Output: 50
```

But do you actually know **the reason** why it works like that?

When an array is used as a value, it evaluates to a pointer to the first element of the array...

RAM

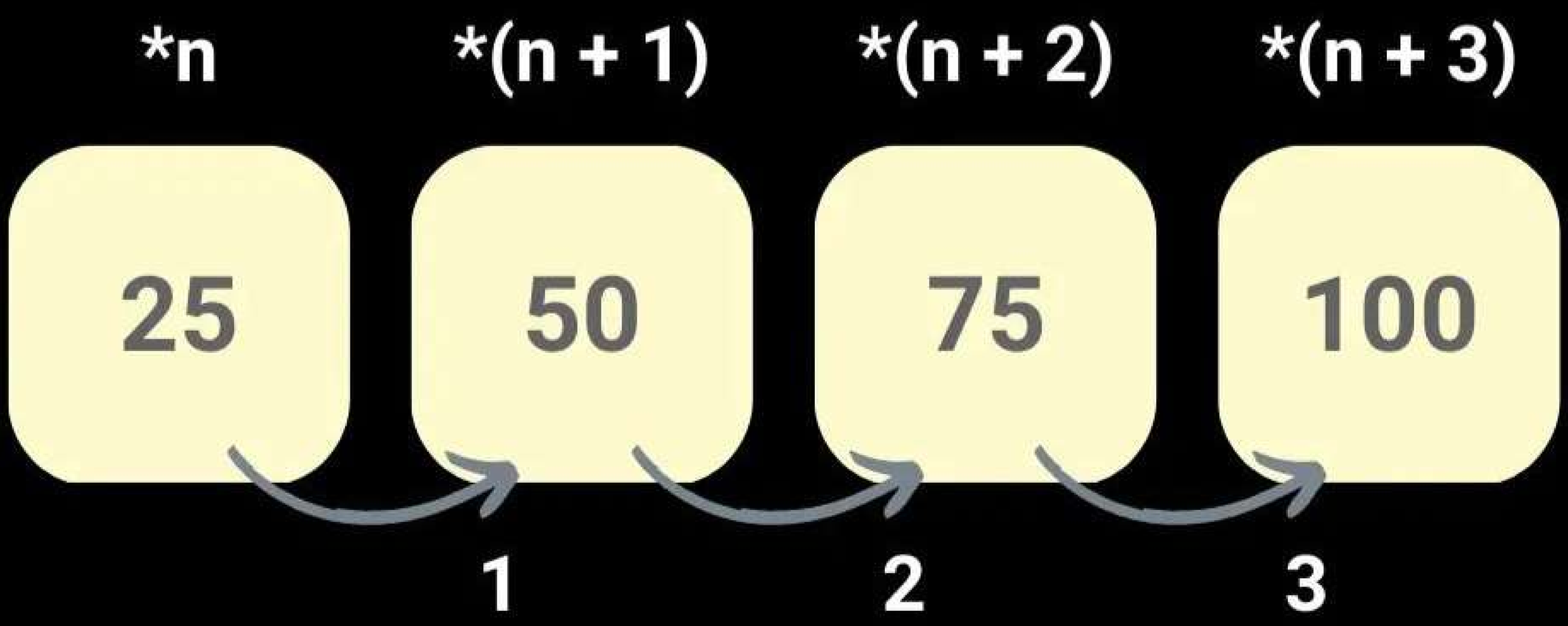


That means the 1st item is accessed by retrieving the pointer's value.

The 2nd item is accessed by using the pointer, plus one more memory slot.

The 3rd item is accessed by using the pointer, plus two more memory slots.

This additional memory slot used to access the items is called offset.



In general, we can say that the elements are located at *(*n + offset*).

If the index started at 1, the compiler'd have to use *(*n + index - 1*) to access the elements.

But if the index starts at 0, it matches the offset.

The compiler can then access the elements by using *(n + index) and avoid the additional -1.