

# CSC148 Worksheet 11 Solution

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## Question 1

a. Here, the constant time means the running time of accessing and assigning element by index doesn't depend on the length of the list.

b.

$$n - i$$

many elements need to be shifted to right.

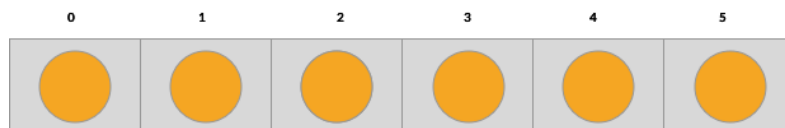
**Correct Solution:**

$$n - i + 1$$

many elements need to be shifted to right.

**Notes:**

- The following example tells us



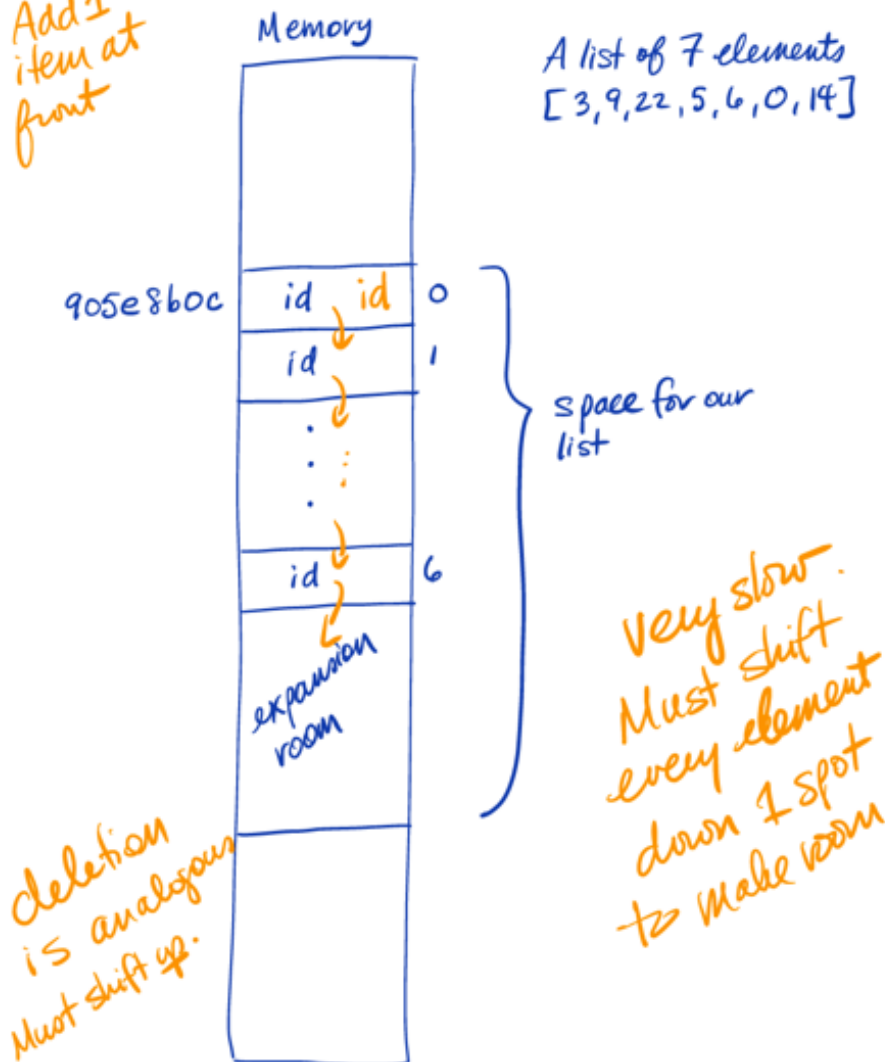
to position an element at index  $i = 3$  of the list,  $n - i + 1 = 3$  elements must be moved over.

Using this fact, we can generalize that to position an element at index  $i$  of the list,  $n - i + 1$  many elements must be shifted.

- Learned that when items shifts, it shifts into the expansion room.

### Updates at the front of our list

Add 1  
item at  
front



## Question 2