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My student Id number: 12149099

Array: [9, 9, 9, 4, 2, 1, 1, 0]

List: [0] → [1] → [1] → [2] → [4] → [9] → [9] → [9]

Insert 4 into an array:

• Step 0:

Array

cur. element: 9

cur. elem. index: 0

Comment: $9 \neq 4 \rightarrow$ next element

• Step 1:

cur. elem.: 9

cur. elem. index: 1

Comment: $9 \neq 4 \rightarrow$ next element

Step 2:

cur. elem. 9

cur. elem. index: 2

Comment: $9 \neq 4 \rightarrow$ next element



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Step 3:

cur. elem. 4

cur. elem. index: 3

Comment: $4 = 4 \rightarrow$ insert 4 to the index position 3 in the array and therefore other elements after the inserted numbers will be shifted for 1 index.

So, the resulting array is:

 $[9, 9, 9, 4, 4, 2, 1, 1, 0]$

inserted element

Insert 4 into a list:

Step 0:

~~List: $[0] \rightarrow [1] \rightarrow [1] \rightarrow [2] \rightarrow [2] \rightarrow [5] \rightarrow [6]$~~ List: $[0] \rightarrow [1] \rightarrow [1] \rightarrow [1] \rightarrow [4] \rightarrow [9] \rightarrow [9] \rightarrow [9]$

Cur. elem.:

Comment: $0 \neq 4 \rightarrow$ next element by following the pointer

Step 1:



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list: [0] → [1] → [2] → [3] → [4] → [5] → [6] → [7]

Cor. elem:

Comment: $1! = 4 \rightarrow$ next element by following the pointer

• Step 2:

List: $[0] \rightarrow [1] \rightarrow [1] \rightarrow [2] \rightarrow [4] \rightarrow [9] \rightarrow [9] \rightarrow [9]$

Cur. elem.

Comment: $1 \rightarrow 4 \rightarrow$ next element by following the pointer

• Step 3:

$$L(S): [0] \rightarrow [1] \rightarrow [1] \rightarrow [2] \rightarrow [4] \rightarrow [9] \rightarrow [9] \rightarrow [9]$$

cur. elem.

comment: $2 \rightarrow 4$ next element by following the pointer

- Step 4:

List: [0] → [1] → [1] → [1] → [4] → [9] → [9] → [9]

Cur. Mem.

comment: $4 \neq 4 \rightarrow$ Let's mark the current element (4) as "cur" and the next element (9) since it exists as "temp". Now, after the iteration we reached the position before designated



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insertion position. ~~Now~~, finally, we can
set new-to-insert node ~~consists~~ (mark as "new node")
consisting of new element (4) to the list.
Additionally, we should relink next pointer
accordingly (like: from "cur" to "new node" and
from "new node" to "temp" removing the
previous pointers)

So, the resulting list is:

[0] → [1] → [1] → [2] → [4] → [4] → [9] → [9] → [9]

"cur"

"temp"
inserted element
(new node)