

# List v. array

list  $\rightarrow$  get(0)

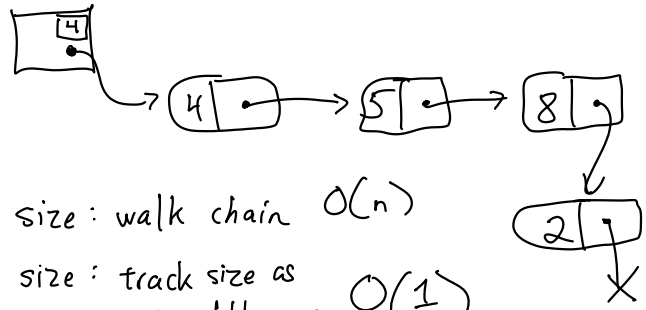
array [0]

list  $\rightarrow$  size()

size?  $\downarrow$

get(n/2) :  $O(n)$

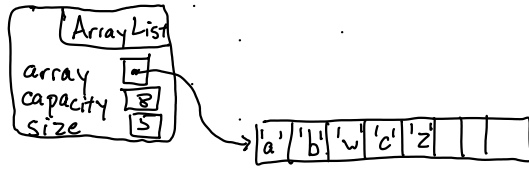
array [n/2] :  $O(1)$



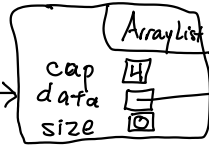
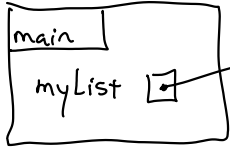
size: walk chain  $O(n)$

size: track size as we add/remove  $O(1)$

# ArrayList



"new ArrayList<>()  
()"



	Linked List	Array List	
size	$O(1)$	$O(1)$	
get	$O(n)$	$O(1)$	
insert At Head	$O(1)$	$O(n)$	
insert At Tail	$O(n)$	$O(n)$	$O(1)$ <u>amortized</u> worst case

Size	Cap	Additions	Copies
0	4	1	0
1	4	1	0
2	4	1	0
3	4	1	0
4	4	1	0
5	8	1	4
6	8	1	0
7	8	1	0
8	8	1	0
9	16	1	8

} 3  
 } 7