Data Structure Properties

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0 puntos posibles (no calificables)

Which of the following statement is **false** regarding Arrays? Select only one.

- Arrays allow for 'easy access', meaning that if we are given a valid index, we can access data at that particular index of an array in constant time.
- Although arrays are instantiated with a starting capacity, its dynamic memory structure allows for it to automatically grow as more data is added to the array over time.
- An array is a 'contiguous' data structure, meaning the indices of an array are stored sequentially in memory.
- Data can be added to any valid index of an array.

Which of the following statement is **true** regarding a Linked List? Select only one.

- Given a valid index, *i*, the data at index *i* of a Linked List can be accessed in constant time.
- Since nodes in a Linked List are Objects, in order to properly remove a node from Linked List, we simply set the node to null.
- Removing a target node from a Singly-Linked List requires accessing the node before the target node.
- All implementations of Linked Lists are circular.

Which of the following statement(s) is/are **true** regarding a Deque? Select **all** that apply.

- [x] Data can be removed from the front and/or end of a Deque in $O(1)$ time.
- [ ] A Deque is best implementing with a Singly-Linked List.
- [ ] The average time complexity for adding to an array-backed Deque is $O(n)$ because of the resize case.
- [x] A Deque can be used as a Stack, Queue, or both.

Below you will find two statements with four blanks labeled **{blank 1}**, **{blank 2}**, **{blank 3}**, and **{blank 4}**. Select the correct answer for each blank using the dropdown.

A Queue is a **{blank 1}** data structure, meaning that data is added/removed at the **{blank 2}** end of the backing structure. A **{blank 3}** is a 'LIFO' data structure, meaning that data is added/removed in a **{blank 4}** fashion.

{**blank 1**}

FIFO ✔ Answer: FIFO

{**blank 2**}

Opposite ✔ Answer: Opposite

{**blank 3**}

Stack ✔ Answer: Stack

{**blank 4**}

last in first out ✔ Answer: last in first out

Enviar

Mostrar respuesta

Las respuestas son mostradas en el problema

Scratchpad

Below is a textbox you can use as a scratchpad while you work through this problem; you should be able to click in the bottom-right and drag to expand it for your use. No text in this box will be used by the grading script, but you can use it to take notes and work through the exercise. Note that text entered in this box **will not be saved** if you leave and return to this page.

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