Big-O

Marcar esta página

For the operations listed below, determine the time complexity of the operations, and choose from the selections provided. Unless otherwise stated, assume the **worst-case** time complexity. However, make sure you choose the tightest Big-O upper bound possible for the operations. Do **not** use amortized analysis for these operations **unless** otherwise specified. You are provided with a scratchpad at the bottom of this page that you may use.

Big-O

0 puntos posibles (no calificables)

What is the cost of adding 100 to a BST, which was initially created by adding the data $1, 2, 3, \ldots, 50$ in that order?

- $O(1)$
- $O(logn)$
- **$O(n)$**
- $O(nlogn)$
- $O(n^2)$

✔

What is the worst case cost of searching for the maximum element in a MaxHeap (assume that you have access to the backingArray)?

- **$O(1)$**
- $O(logn)$
- $O(n)$
- $O(nlogn)$
- $O(n^2)$

✔

What is the cost of adding to a linear probing HashMap that has a reasonably sized backing array using a good hash function?

- $O(1)$
- $O(logn)$
- **$O(n)$**

- ○ $O(nlogn)$
- ○ $O(n^2)$

✔

What is the cost of accessing the smallest element in a SkipList (assuming the number of levels is capped at $log(n)$)?

- ○ $O(1)$
- ◉ $O(logn)$
- ○ $O(n)$
- ○ $O(nlogn)$
- ○ $O(n^2)$

✔

What is the cost of removing the largest element in a BST?

- ○ $O(1)$
- ○ $O(logn)$
- ◉ $O(n)$
- ○ $O(nlogn)$
- ○ $O(n^2)$

✔

What is the cost of retrieving the maximum element in a MinHeap (assume that you have no access to the backingArray)?

- ○ $O(1)$
- ○ $O(logn)$
- ○ $O(n)$
- ◉ $O(nlogn)$
- ○ $O(n^2)$

✔

What is the cost of adding to an external chaining HashMap using keys whose hash function always returns 8?

- ○ $O(1)$
- ○ $O(logn)$
- ◉ $O(n)$
- ○ $O(nlogn)$
- ○ $O(n^2)$

What is the average case of searching for an element in a SkipList?

- $O(1)$
- $O(logn)$
- $O(n)$
- $O(nlogn)$
- $O(n^2)$

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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