Worst Case Complexity Analysis

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Data Structures

Assignment 4

Option 1: insert

The insert function has a time complexity of **O(logn)**. This follows from the basic properties of a binary tree. This is the main advantage of using a binary tree, it allows objects to be entered and then “sorted” with **O(logn)** time complexity.

Option 2: nextPatient

This operation has a time complexity of **O(1).** This is because the root is always the highest priority in the heap, allowing its immediate removal.

Option 4: removePatient

The time complexity of this operation is also **O(logn)**. The tree must be iterated through and the resorted once the patient is found, giving a time complexity of **O(logn).**