

Why is a Stack suitable for managing discharge records?

Stack method using (LIFO) way. So, Last In First Out. The record of the last person discharged is more important than the record of the first person discharged. Therefore stack suitable for this Project. For example, push() method adds from the top. pop() method deletes from the last. This process suitable for discharge records.

What would happen if you replaced it with a Queue? Discuss Big O comparisons?

If we used a queue instead of a stack, Queue method using FIFO way. So, First In First Out. In this situation, It would be difficult to look the most recently added discharge record.

Time Complexity:

If we use stack functions for this Project:

push() is $O(1)$. Because just adds from top.

pop() is $O(1)$. Because just delete from top.

peek() is $O(1)$. Because just look from top element.

printStack() is $O(n)$. Because all elements are looked.

If we use Queue method for this Project.

enqueue() is $O(1)$. Because just add from last.

dequeue() is $O(1)$. Because just delete from first.

printQueue() is $O(n)$. Because all elements are looked.