Why is a Stack suitable for managing discharge records?

Because Stack is based on the LIFO (Last In, First Out) logic. The stack keeps the most recently added items at the top, this information is very easy to access. When registering at the hospital, they check who was the last person to leave.

What would happen if you replaced it with a Queue?

If it were a queue, we would have to remove every single patient in line to find the last one to leave. If there were 1000 people in the queue, we would have to pass 999 people to reach the last one.

Discuss Big O comparisons.

The push operation adds a new discharge record to the top of the stack by updating the head reference. Since no traversal is required, the time complexity of this operation is **O(1).**

This operation also only involves accessing and updating the head node of the linked list, resulting in a constant time complexity of **O(1).**