TASK 3 - REPORT

In this task, a stack data structure is used to manage discharged patients in the hospital system.

The stack follows the LIFO (Last In First Out) rule.

This means the last discharged patient is processed first.

Each discharge is stored as a DischargeRecord object.

The stack is implemented using a linked list structure.

The top of the stack always shows the most recent discharge record.

The push method adds a new discharge record to the top of the stack.

This operation is done in O(1) time because no traversal is needed.

The pop method removes the top record from the stack.

The top reference is moved to the next node.

This operation also works in O(1) time.

The peek method shows the most recent discharge without removing it.

This method is useful to check the last discharged patient.

A stack is suitable for discharge records because hospitals often check the latest discharge first.

It helps to track recent patient actions easily.

If a queue was used instead of a stack, the first discharged patient would be processed first.

This is not suitable for recent record tracking.

Both stack and queue have O(1) add and remove operations, but stack behavior fits this scenario better.