Task Management System

1. Understand Linked Lists:

* Linked lists are linear data structures where elements (nodes) are connected using pointers. Each node contains data and a reference to the next node. There are different types of linked lists:
* Singly linked list is the type of linked list where each node has data and a pointer to the next node and the traversal is possible only in one direction (from head to tail).
* Doubly linked list is when each node has data, a pointer to the next node, and a pointer to the previous node. It allows traversal in both direction (forward and backward).

1. Setup:

* A class “Task” with attributes like “taskId”, “taskName”, and “status” was created.

1. Implementation:

* Singly linked list was implemented to manage tasks.
* Methods to “add”, “search”, “traverse”, and “delete” tasks were implemented in the linked list.

1. Analysis:

* Time Complexity for adding/searching/deleting tasks: O(n).
* Advantages of linked lists over arrays:
* Dynamic size (no fixed capacity).
* Efficient insertions and deletions (no shifting elements).
* No memory wastage (only allocate what is needed).