

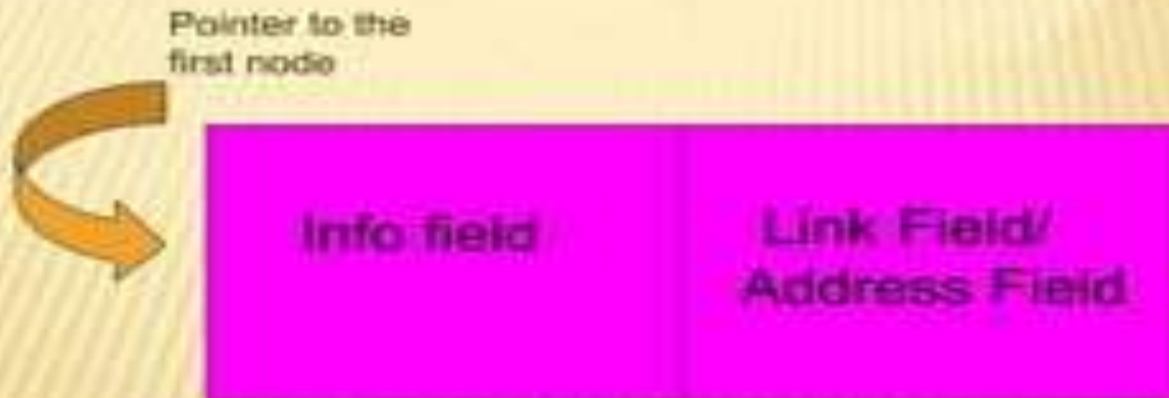


Programming Details for Linked List



What is Linked List?

A linked list is a collection of nodes with various fields
It contains data field and Address field or Link field





LIMITATIONS OF ARRAYS

- Arrays are simple to understand and elements of an array are easily accessible
- But arrays have some limitations.
- Arrays have a fixed dimension.
- Once the size of an array is decided it can not be increased or decreased during execution.



- Array elements are always stored in contiguous memory locations.
- Operations like insertion or deletion of the array are pretty tedious.
- To overcome these limitations we use linked list.



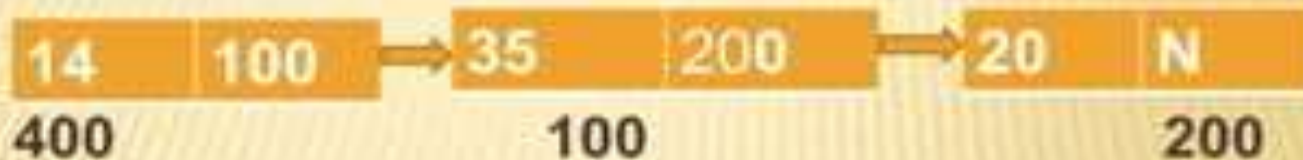
ARRAYS VS LINKED LISTS

Arrays	Linked list
Fixed size: Resizing is expensive	Dynamic size
Insertions and Deletions are inefficient: Elements are usually shifted	Insertions and Deletions are efficient: No shifting
Random access i.e., efficient indexing	No random access → Not suitable for operations requiring accessing elements by index such as sorting
No memory waste if the array is full or almost full; otherwise may result in much memory waste.	Since memory is allocated dynamically(acc. to our need) there is no waste of memory.
Sequential access is faster [Reason: Elements in contiguous memory locations]	Sequential access is slow [Reason: Elements not in contiguous memory locations]



Inserting a new node :

Before inserting:



After inserting:





Delete a node from the list:

before deletion:



after deletion :

