Advantages[[edit](https://en.wikipedia.org/w/index.php?title=Linked_list&action=edit&section=1" \o "Edit section: Advantages)]

* Linked lists are a dynamic data structure, which can grow and be pruned, allocating and deallocating memory while the program is running.
* Insertion and deletion node operations are easily implemented in a linked list.
* Linear data structures such as stacks and queues are easily executed with a linked list.
* They can reduce access time and may expand in real time without memory overhead.

Disadvantages[[edit](https://en.wikipedia.org/w/index.php?title=Linked_list&action=edit&section=2" \o "Edit section: Disadvantages)]

* They use more memory than [arrays](https://en.wikipedia.org/wiki/Array_data_structure) because of the storage used by their [pointers](https://en.wikipedia.org/wiki/Pointer_(computer_science)).
* Nodes in a linked list must be read in order from the beginning as linked lists are inherently [sequential access](https://en.wikipedia.org/wiki/Sequential_access).
* Nodes are stored incontiguously, greatly increasing the time required to access individual elements within the list.
* Difficulties arise in linked lists when it comes to reverse traversing. For instance, singly linked lists are cumbersome to navigate backwards[[1]](https://en.wikipedia.org/wiki/Linked_list" \l "cite_note-1) and while doubly linked lists are somewhat easier to read, memory is wasted in allocating space for a back pointer.

Types of linklist

Singly linklist

#### Applications of Linked Lists

* Linked lists are used to implement stacks, queues, graphs, etc.
* Linked lists let you insert elements at the beginning and end of the list.
* In Linked Lists we don’t need to know the size in advance.

Doubly Linklist

### Applications/Uses of doubly linked list in real life

There are various application of doubly linked list in the real world. Some of them can be listed as:

* Doubly linked list can be used in navigation systems where both front and back navigation is required.
* It is used by browsers to implement backward and forward navigation of visited web pages i.e. **back** and **forward** button.
* It is also used by various application to implement Undo and Redo functionality.
* It can also be used to represent deck of cards in games.
* It is also used to represent various states of a game.

Circular linkList

* The real life application where the circular linked list is used is our Personal Computers, where multiple applications are running. All the running applications are kept in a circular linked list and the OS gives a fixed time slot to all for running. The Operating System keeps on iterating over the linked list until all the applications are completed.
* Another example can be Multiplayer games. All the Players are kept in a Circular Linked List and the pointer keeps on moving forward as a player's chance ends.
* Circular Linked List can also be used to create Circular Queue. In a Queue we have to keep two pointers, FRONT and REAR in memory all the time, where as in Circular Linked List, only one pointer is required.