LinkedList ADT Cheat Sheet

by evanescesn09 via cheatography.com/88543/cs/20294/

Definition

Definition	It's a linear data structure which stores data sequentially, but not in contiguous memory locations

Types

Single Linked List	Each node has a pointer to the next node. Last node is always points to null
Double Linked List	Each node has 2 references :1 to previous node, the other to next node. Prev element of head is always null, next reference of tail node always points to null
Circular LinkedList	It could be a single or a double linkedlist. The difference is that instead of having the last node point to null, it points to head node. It is useful in implem-enting round-robin algorithms

append(int data)

```
Node newNode = new Node(data);
while(head.next != null){
head=head.next;
}
head.next = newNode;
```

prepend(data)

```
Node newHead = new Node(data);
newHead.next = head;
head = newHead;
return head;
```

deleteHead

```
if(head == null) return;
if(head.next = null)
   head = null;
else{
  head.data = head.next.data;
  head.next = head.next.next;
}
```

Note

1. Always check for null pointers when traversing linkedLists
2. When traversing in place, consider using 2 points - slow, fast :
1. to compare each element with another
2. to go to the middle element when size of list is unknown
3. to find kth element from last when size of list if unknown
4. to determine if linkedlist has a cycle, or to find the cycle element

deleteTail( )

```
while(node.next.next!=null){
node = node.next;
}
node.next = null;
```

deleteNode(data)

```
while(head.next !=null){
  if(head.next.data == data){
     head.next = head.next.next;
     break;
  }
 head = head.next;
}
```

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