Radix Sort Algorithm :→

Place value
1's, 10's, 100

- * Multi Digit Nos
- * Constant length Strings

| 325 | 042 | 009 | 081 | 004 |

| 081 | 042 | 004 | 325 | 009 | ①

| 004 | 009 | 325 | 042 | 081 | ②

| 004 | 009 | 042 | 081 | 325 | ③

Step 1 : Bucket – (0-9)

Step 2 : Max → 325

3digits → 3 passes

Step 3 : 1s, 10's, 100's

10 Buckets 0 – 9

0	1	2	3	4	5	6	7	8	9
004 009 042 081			325						

Time Complexity $O(n+K)$

How to determine & control the no. of passes in Radix Sort ?

```
for (int exp = 1; max / exp > 0;
                          exp *= 10)
{
      count sort ( );
}
```

1

2

3

$325/10 = 32$

$32/100 = 3$

$325/1000 = 0$ → stop

exp = 1

max = 325

exp = 10

exp = 100

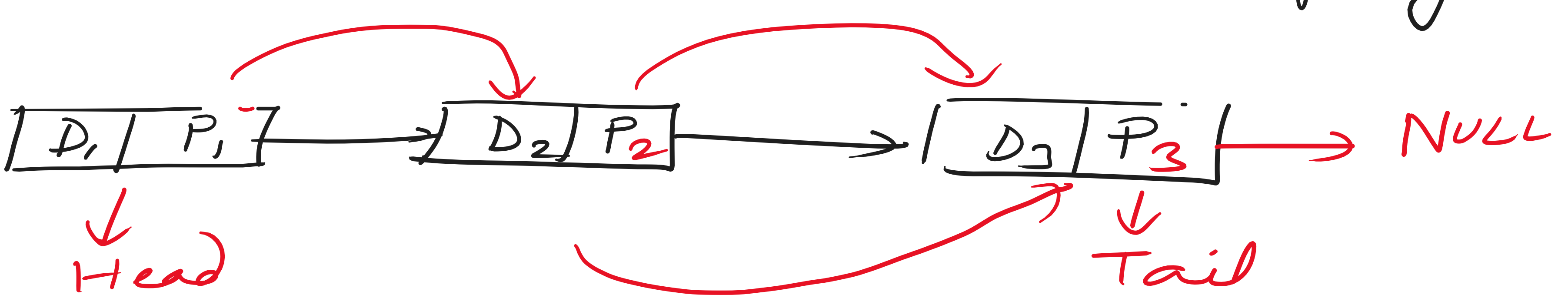
1000

Introduction to Linear Data Structures

① Linked Lists :

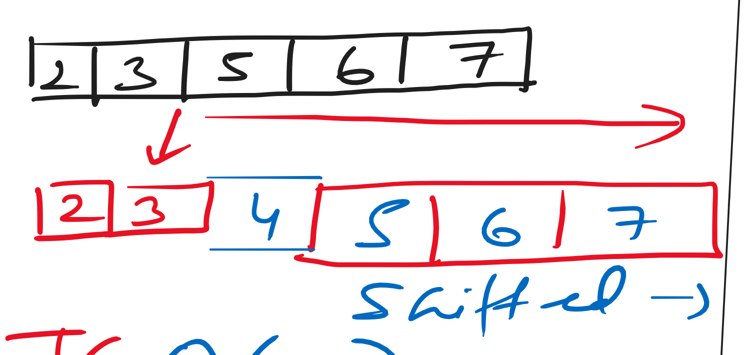
- ↳ Singly Linked list
- ↳ Doubly linked list
- ↳ Circular linked list

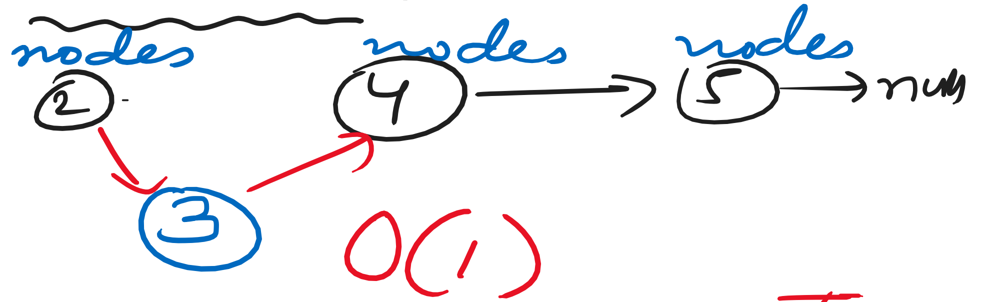
(i) Insert (ii) Delete (iii) Display

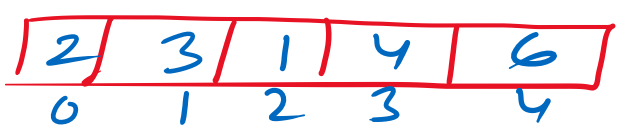


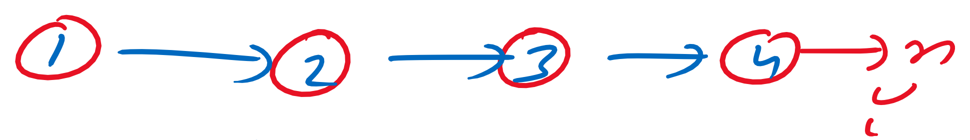
Differences b/w Arrays & Linked Lists

Arrays	Linked Lists
Insertion :→	Insertion :→
TC O(n)	O(1) constant TC Finite Operations
Search / Access	Search / Access
4th element : arr[3] → indexing Constant → O(1)	4th nodes O(n) Linear









Singly Linked List with all operations :→

Insert → Insert At Head

Insert At Tail

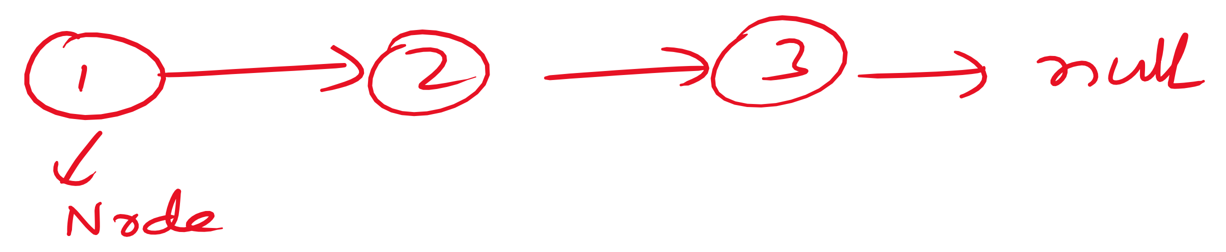
Insert After Specific

Delete → Delete Head

Delete Tail

Delete Specific Target

Display ( )



display (Node)

Insert At front :