

23-09-2020

ADS LAB

Program - 1

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Section 'A' CSE

Memory efficient doubly linked list

Insert-front (head, data)

node new = new node()

new → data = data

new → ptrdiff = head

if (head != NULL)

head → ptrdiff = head → ptrdiff XOR new

head = new

return head;

Insert-rear (head, data)

node new = new node()

new → data = data

new → ptrdiff = NULL

temp = head, prev = NULL

if (head == NULL)

~~new → ptrdiff~~  
return new;

while (temp != NULL)

next = prev XOR temp → ptrdiff

prev = temp

temp = next

prev → ptrdiff = prev → ptrdiff XOR new

new → ptrdiff = prev

return head.