

Remove Duplicates in Sorted Linked List

Input: $2 \rightarrow 2 \rightarrow 2 \rightarrow 3 \rightarrow 3 \rightarrow 4 \rightarrow 5 \rightarrow 5 \rightarrow 5 \rightarrow 5$ = this

Output: $2 \rightarrow 3 \rightarrow 4 \rightarrow 5$ = res

= FUNDA? \rightarrow this list me se hamesa removeFirst kro!
res list me addLast krna hai ki nahi
 yeh depend krta hai!

\rightarrow * res = size zero

\rightarrow * Ya jo data ara hai vo res ki
 tail se alag hona chahiye!

\therefore Atlast: this.head = res.head
this.tail = res.tail

public void removeDuplicates() {
 LinkedList res = new LinkedList();

while (this.size() > 0) {
 int val = this.getFirst();
 this.removeFirst();

if (res.size() == 0 || val != res.tail.data) {
 res.addLast(val);
 }

}
 this.head = res.head;
 this.tail = res.tail;
 this.size = res.size;

}
original: $(2) \rightarrow (3) \rightarrow (3)$ \leftarrow tail
 head

resultant: (1) \leftarrow tail
 head size=1

Remove First ()
 val = 2: Result tail = 1 \neq 2: AddLast(2)

original: $(3) \rightarrow (3)$ \leftarrow tail
 head size=2

resultant: $(1) \rightarrow (2)$ \leftarrow tail
 head size=2

Remove First ()
 val = 3: Result tail = 2 \neq 3: addLast(3)

original: $(1) \rightarrow (1) \rightarrow (2) \rightarrow (3) \rightarrow (3)$ \leftarrow tail
 head size=5
resultant: head = null, tail = null
 size = 0

Remove First ()

val = 1,

Resultant list is empty: addLast(1)

original: $(1) \rightarrow (2) \rightarrow (3) \rightarrow (3)$ \leftarrow tail
 head size=4

resultant: (1) \leftarrow tail
 head size=1

Remove First ()

val = 1: Resultant tail node = 1:
 Don't Add

original: (3) \leftarrow tail
 head size=1

resultant: $(1) \rightarrow (2) \rightarrow (3)$ \leftarrow tail
 head size=3

Remove First () \rightarrow val = 3

\rightarrow Result tail = 3 = 3: Don't Add

original: head = tail = null
 size = 0

Resultant: $(1) \rightarrow (2) \rightarrow (3)$ \leftarrow tail
 head size=3