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1.

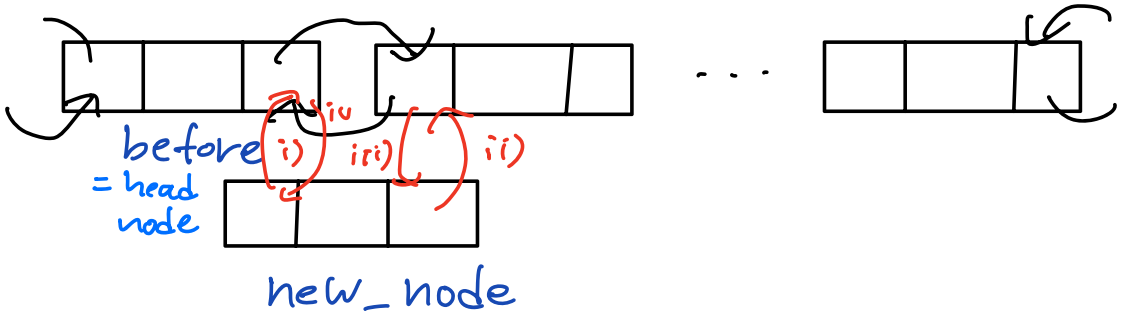
'dinsert_node' can be used when inserting a new node in the beginning or at the end of doubly linked list.

The pseudo-code of 'dinsert_node' was like this.

```
i) new_node -> llink = before;
ii) new_node -> rlink = before -> rlink;
iii) before -> rlink -> llink = new_node;
iv) before -> rlink = new_node;
```

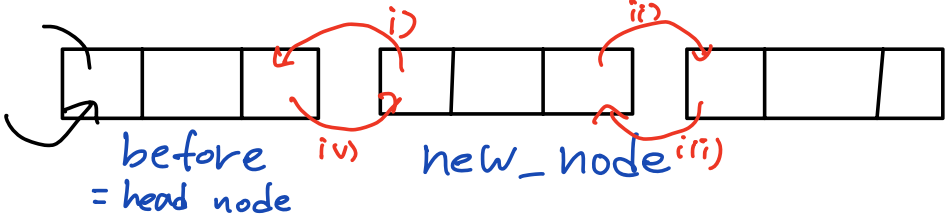
Let's apply this when inserting the element at the beginning or the end of doubly linked list.

i) at the beginning



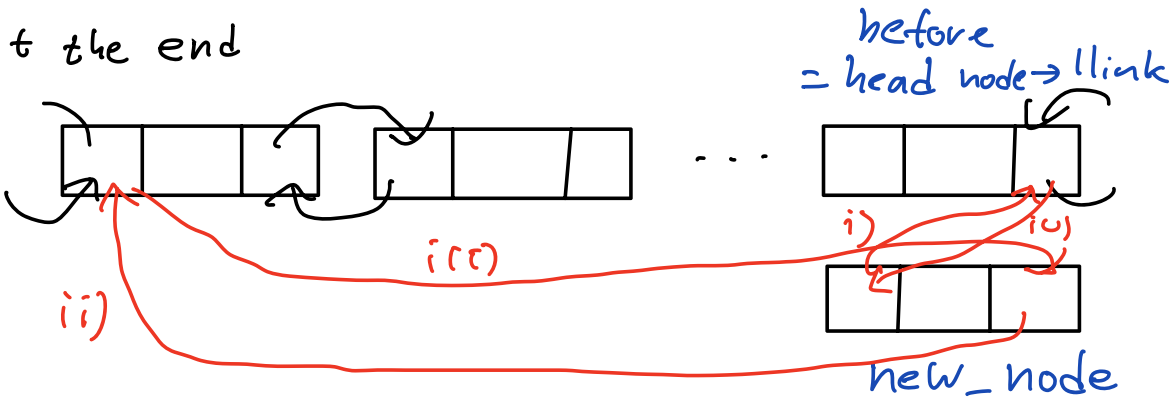
This time, before will be the head node.

After the insertion, link would be like this.

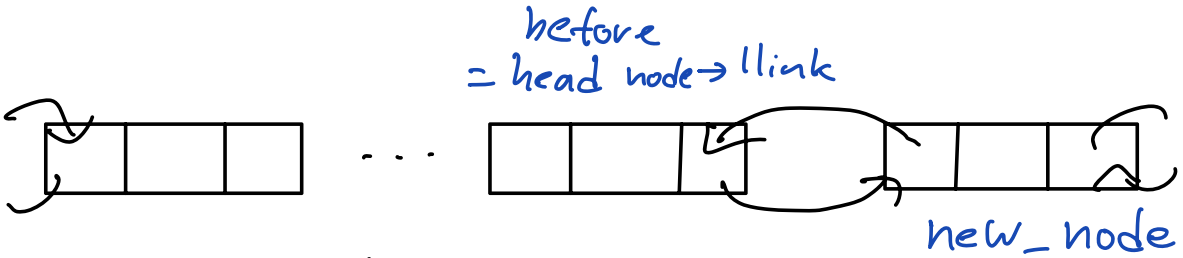


You can see the node is well inserted in the beginning of the list.

ii) At the end



In this case, before node would be head node's llink. It also means that before node's rlink is head node too. After the insertion, the list would be like this.



You can see the new element is inserted well.

Therefore, it is possible to insert new element at the beginning and end of the list without additional functions.