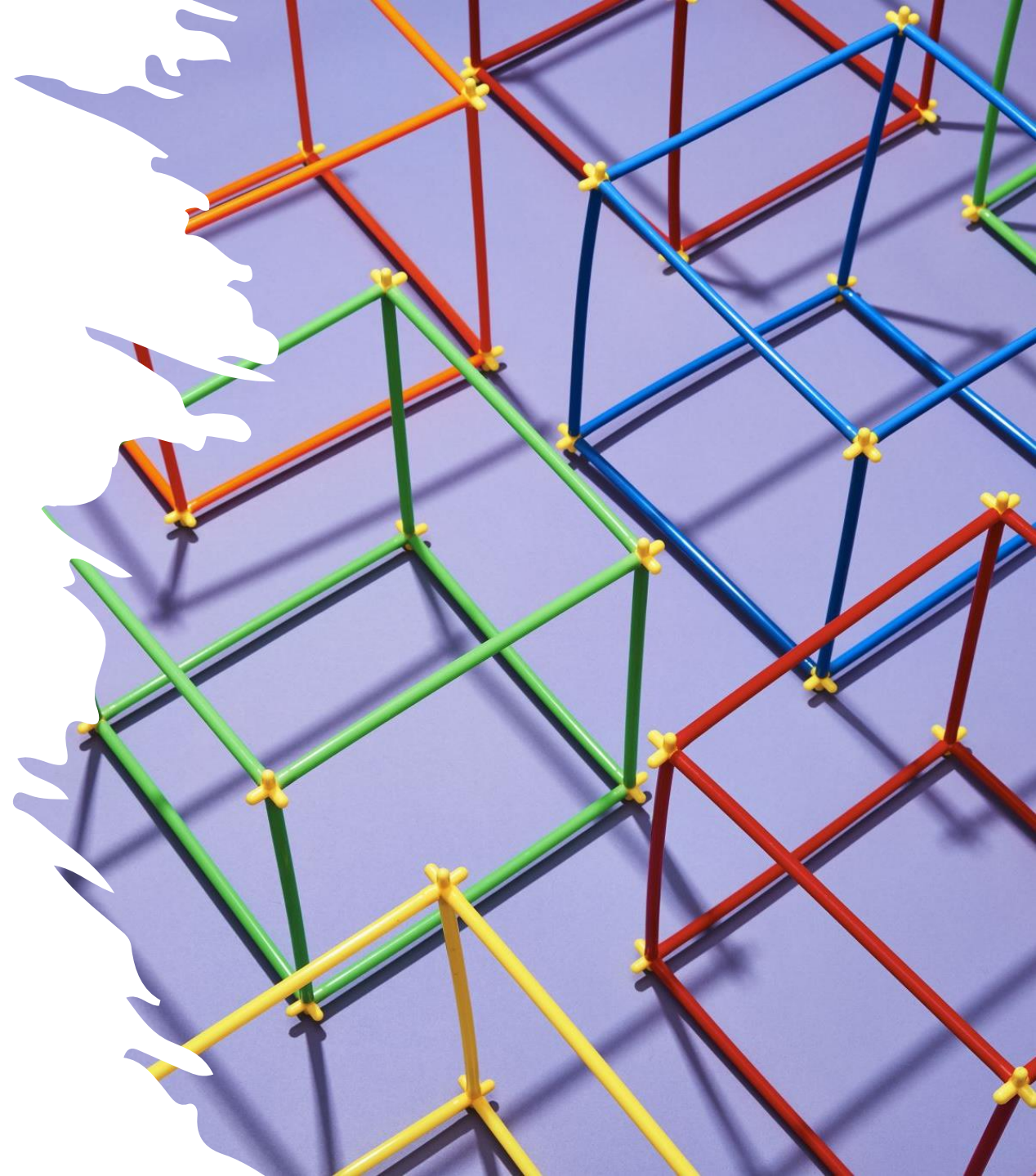


Data Structure

Lecture 5: Linked List

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**Algorithm For
Insertion Of Node
When Node
Number Is Known
(insert in previous position)**

struct start, *previous, *node, *newnode

insnode(start, previous,node,no,newnode) [no is the node number]

step-1 : previous := &start

node := start.next

count :=1

step-2 : repeat while(node != null)

if(count = no) then:

newnode → next = new link() \\allocate space in memory

input : newnode → info

previous → next = newnode

newnode →next = node

return

else :

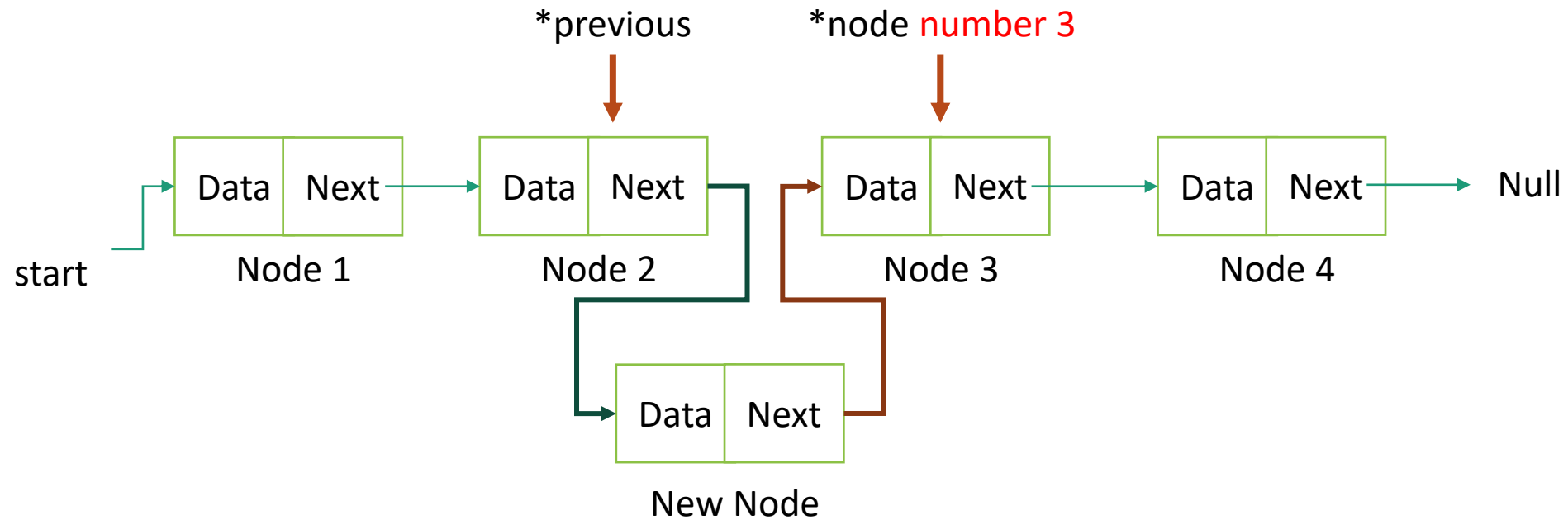
node = node → next

previous = previous → next

count:=count+1

step-3 : return

Example: insert a new node at node number 3



Algorithm For Insertion Of Node When Information Is Known

insertnode(start, previous, node, data, newnode) [data is information to insert]

step-1 : previous := &start

node := start.next

step-2 : repeat while(node != null)

if(node → info = data) then:

newnode → next = new link()

input : newnode → info /*insert data*/

previous → next = newnode

newnode → next = node

return

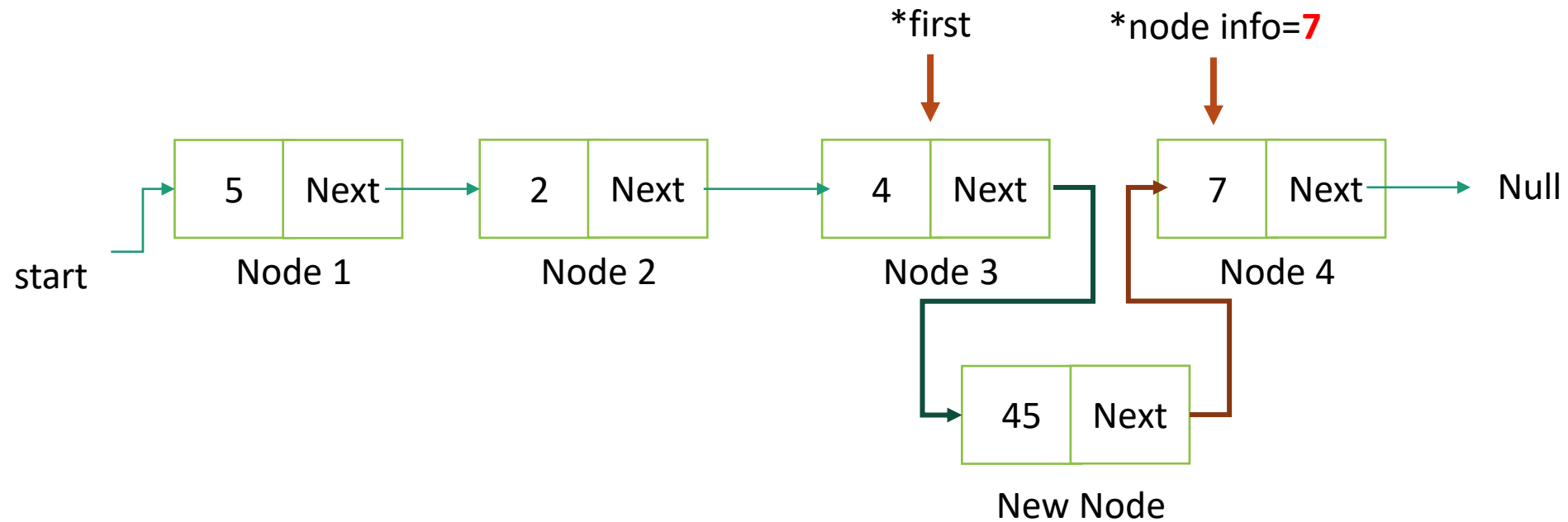
else:

node = node → next

previous = previous → next

step-3 : return

Example: insert a new node at info =7



Algorithm For Deletion From Beginning

delbeg(start, first, node)

step-1 : first := &start

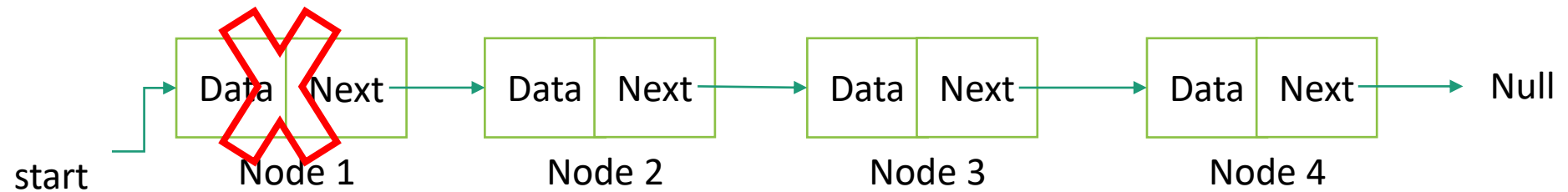
node := start.next

step-2 : first → next = node → next

free(node)

step-3 : return

Example of Deleting a node in the beginning



Algorithm For Deletion Of Node When Node Number Is Known

delnode(start,previous,node,no) [no is the node number]

step-1 : previous := &start

node := start.next

count :=1

step-2 : repeat while(node != null)

if(count = no) then:

previous → next =node → next

free(node)

return

else :

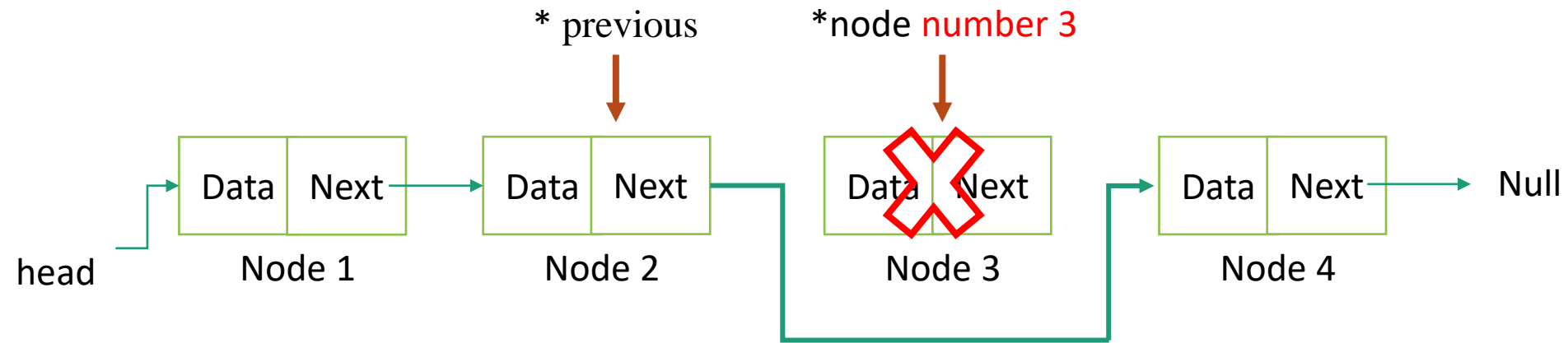
node = node → next

previous := previous → next

count:=count+1

step-3 : return

Example: delete a node at node number 3



Algorithm For Deletion Of Node When Information Is Known

delinfo(start,previous,node,data) [data is the information to insert]

step-1 : previous = &start

node = start.next

step-2 : repeat while(node != null)

if(node → info = data) then:

previous → next = node → next

free(node)

return

else :

node = node → next

previous = previous → next

step-3 : return

Example: delete a node at info =4

