

DSA using Python

Circular Doubly Linked List

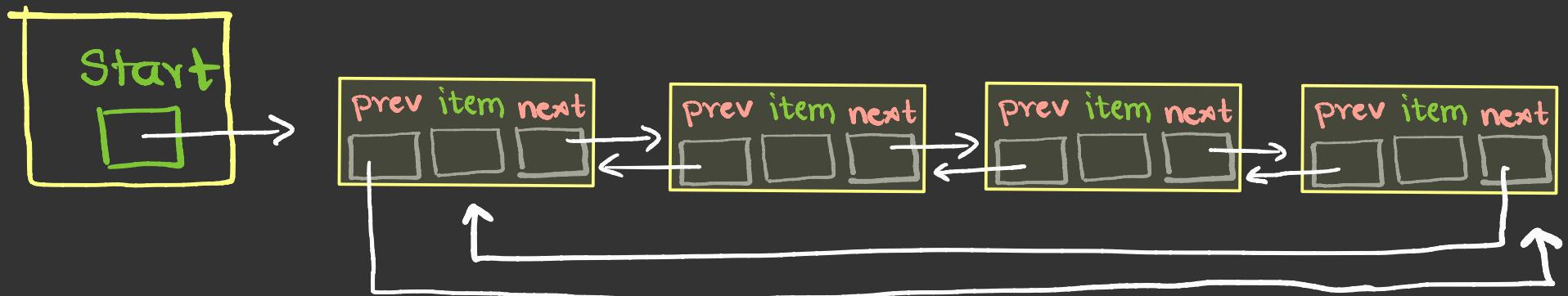


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Agenda

- ① Circular Doubly Linked List
- ② Elementary Operations on CDLL

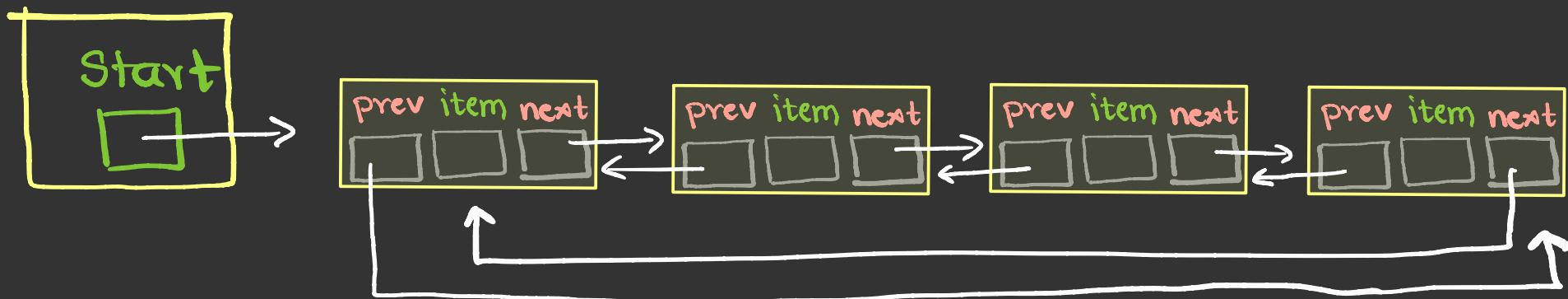
Blend of Circular and Doubly Linked List



Elementary Operations on CDLL

- ① insertion
- ② Deletion
- ③ traversing
- ④ search
- ⑤ check for empty

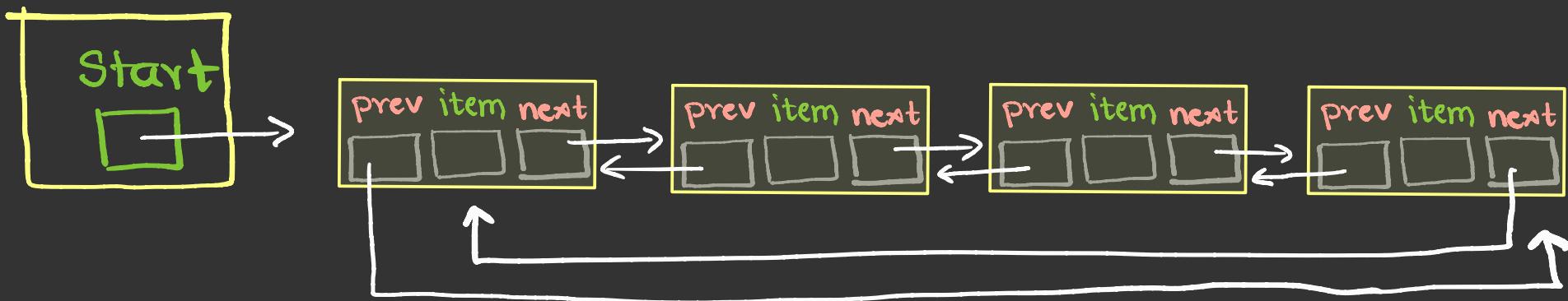
Insertion



$n.item = \text{data}$
 $n.next = \text{start}$
 $n.prev = \text{start.prev}$
 $\text{start.prev.next} = n$
 $\text{start.prev} = n$

$\text{start} = n$

Insertion



$n.item = \text{data}$

$n.prev = \text{start}.prev$

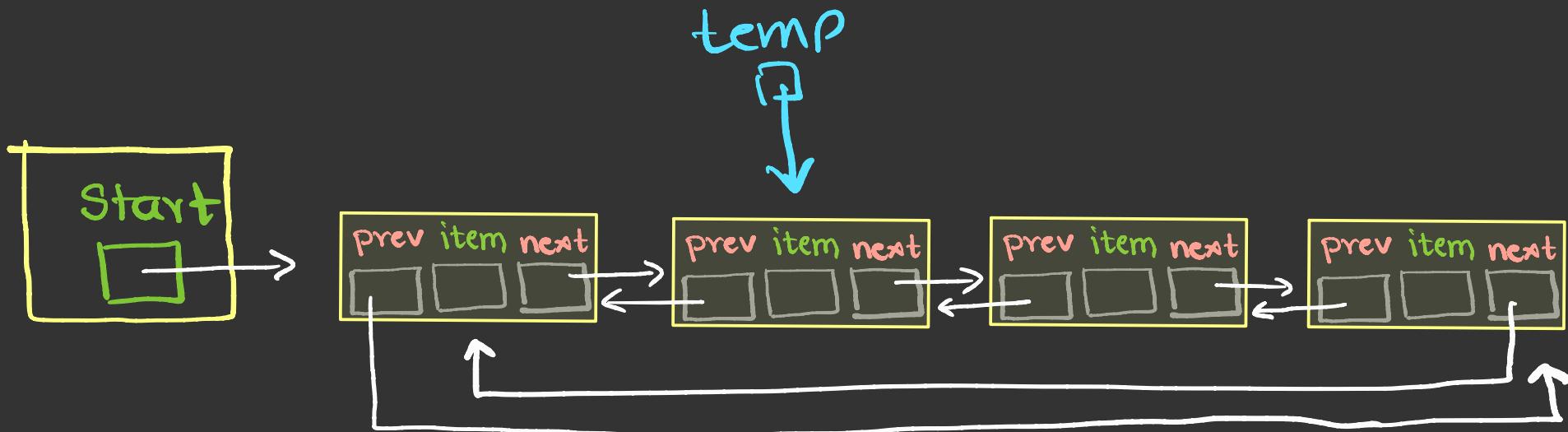
$n.next = \text{start}$

$\text{start}.prev.next = n$

$\text{start}.prev = n$



Insertion



$n.item = \text{data}$

$n.prev = \text{temp}$

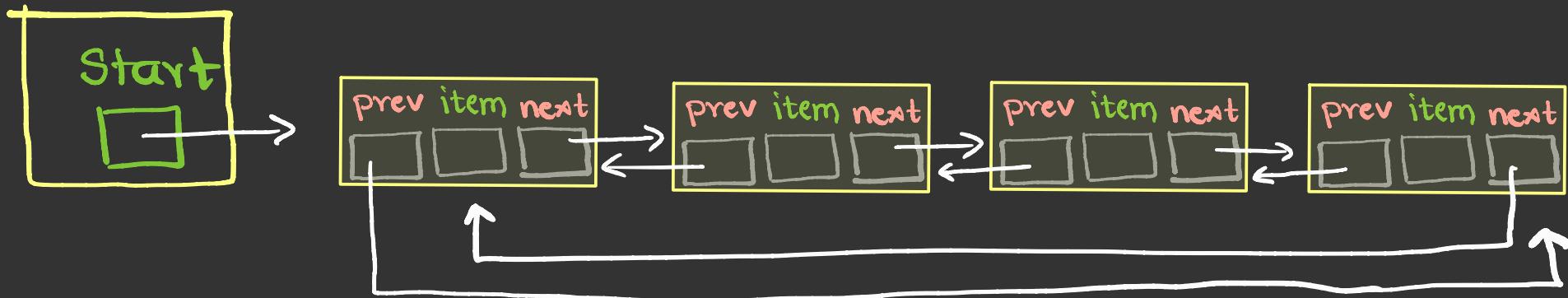
$n.next = \text{temp}.next$

$\text{temp}.next.prev = n$

$\text{temp}.next = n$



Deletion



$\text{start.prev.next} = \text{start.next}$

$\text{start.next.prev} = \text{start.prev}$

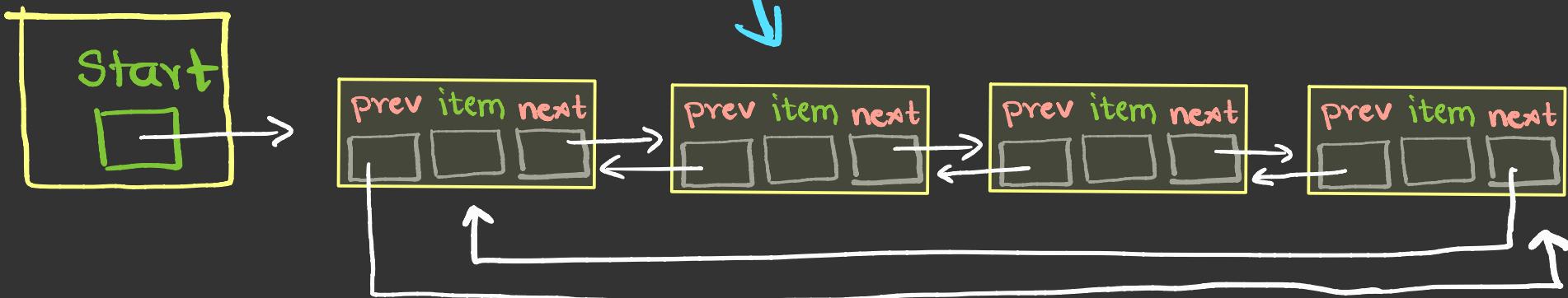
$\text{start} = \text{start.next}$

Deletion

$\text{start} \cdot \text{prev} \cdot \text{prev} \cdot \text{next} = \text{start}$

temp

$\text{start} \cdot \text{prev} = \text{start} \cdot \text{prev} \cdot \text{prev}$



$\text{temp} \cdot \text{prev} \cdot \text{next} = \text{temp} \cdot \text{next}$

$\text{temp} \cdot \text{next} \cdot \text{prev} = \text{temp} \cdot \text{prev}$