Fakultas Informatika
School of Computing
Telkom University

CCK2AAB4
STRUKTUR DATA

Single Linked List

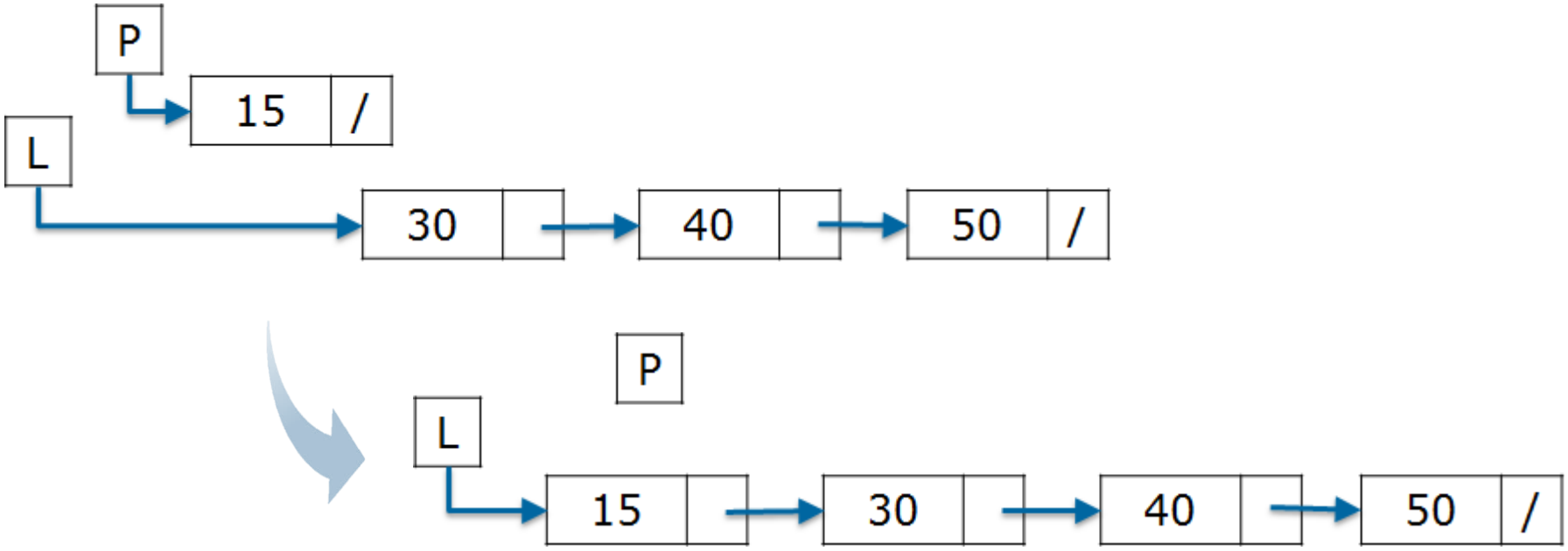
Insertion and Deletion

Inserting new Element

- **Insert first**
  - New element became the first element of the list
- **Insert last**
  - New element became the last element of the list
- **Insert after / Insert before**
  - Put the element somewhere in the middle

Insert First

- Insert element P into List L so that P become the first element of L

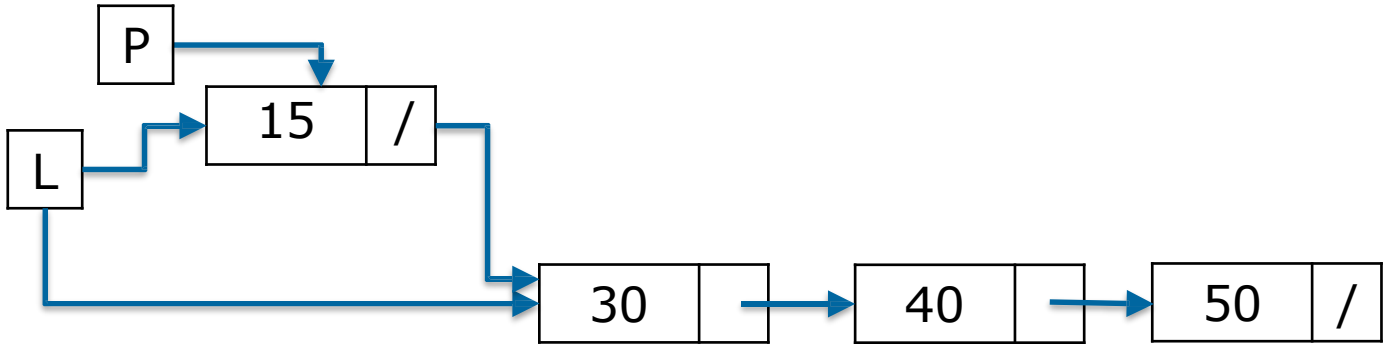


Insert First

Algorithm

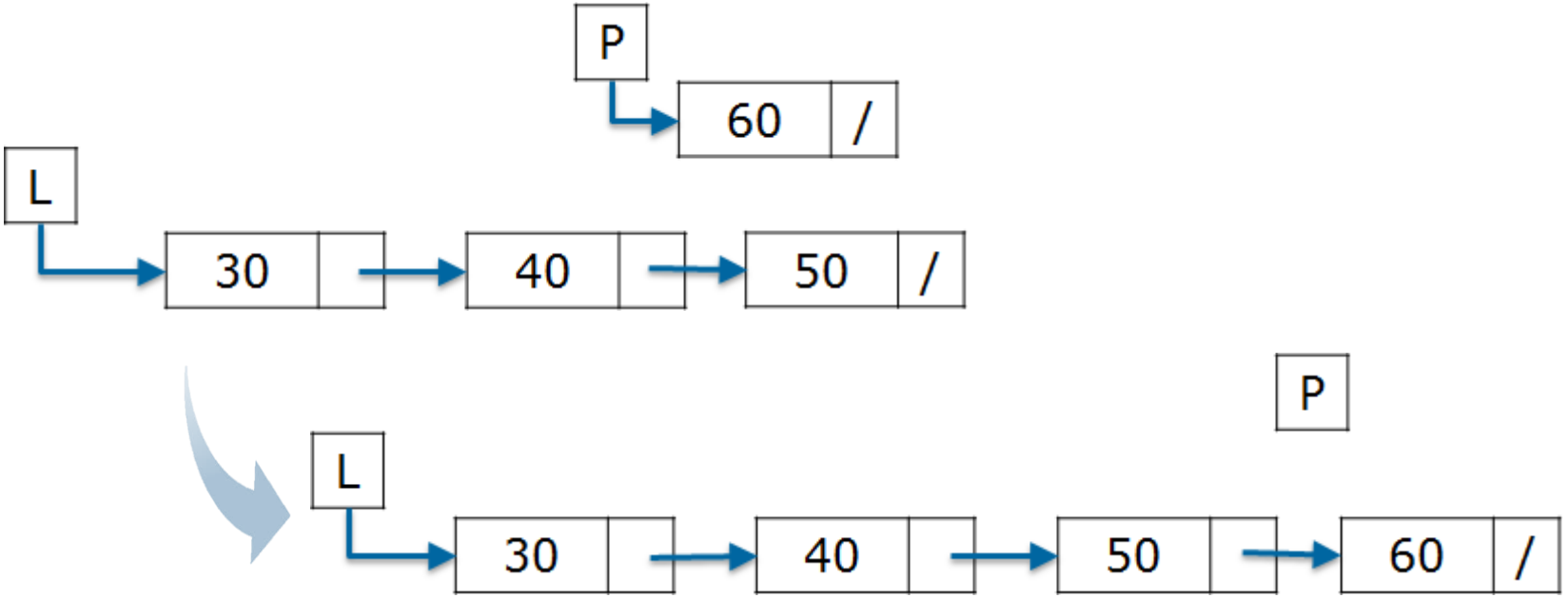
next(P) ← first(L)

first(L) ← P



Insert Last

- Insert element P into List L so that P become the last element of L



Insert Last

Dictionary

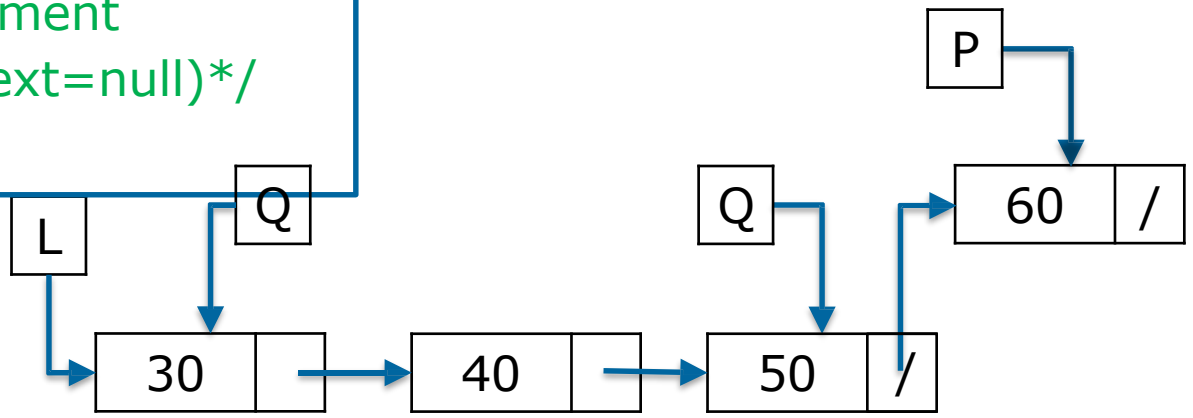
Q : address

Algorithm

Q ← first(L)

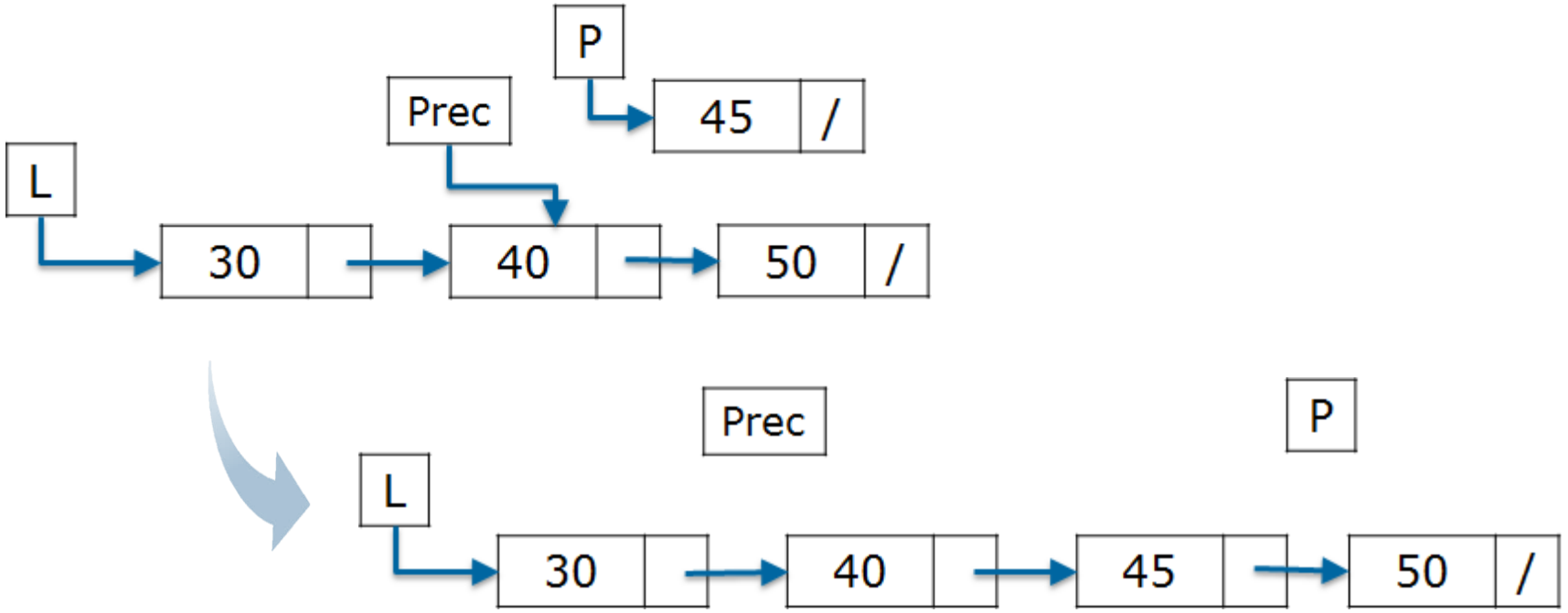
/* create a mechanism so that Q points the last element (gunakan loop sampai next=null)*/

next(Q) ← P



Insert After

- Insert element P into List L so that P become the next element of Prec

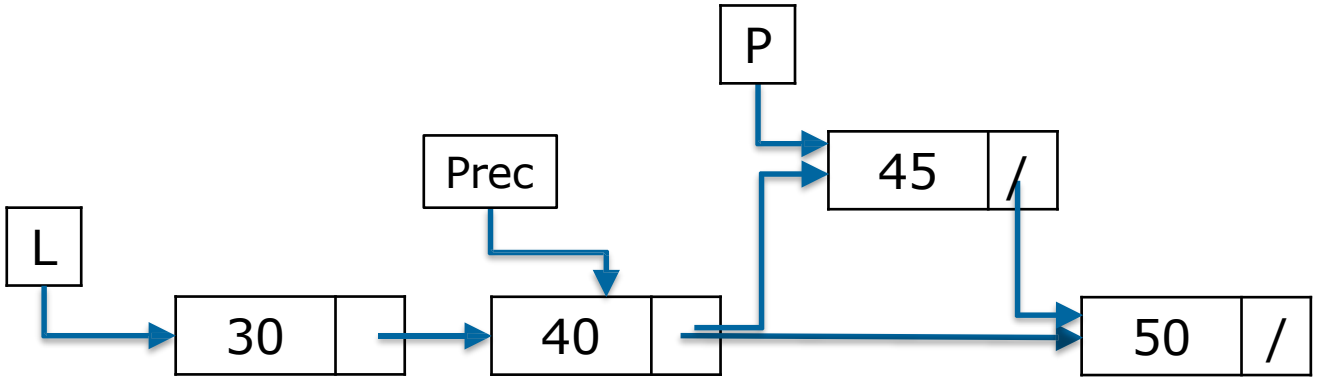


Insert After

Algorithm

next(P) ← next(Prec)

next(Prec) ← P

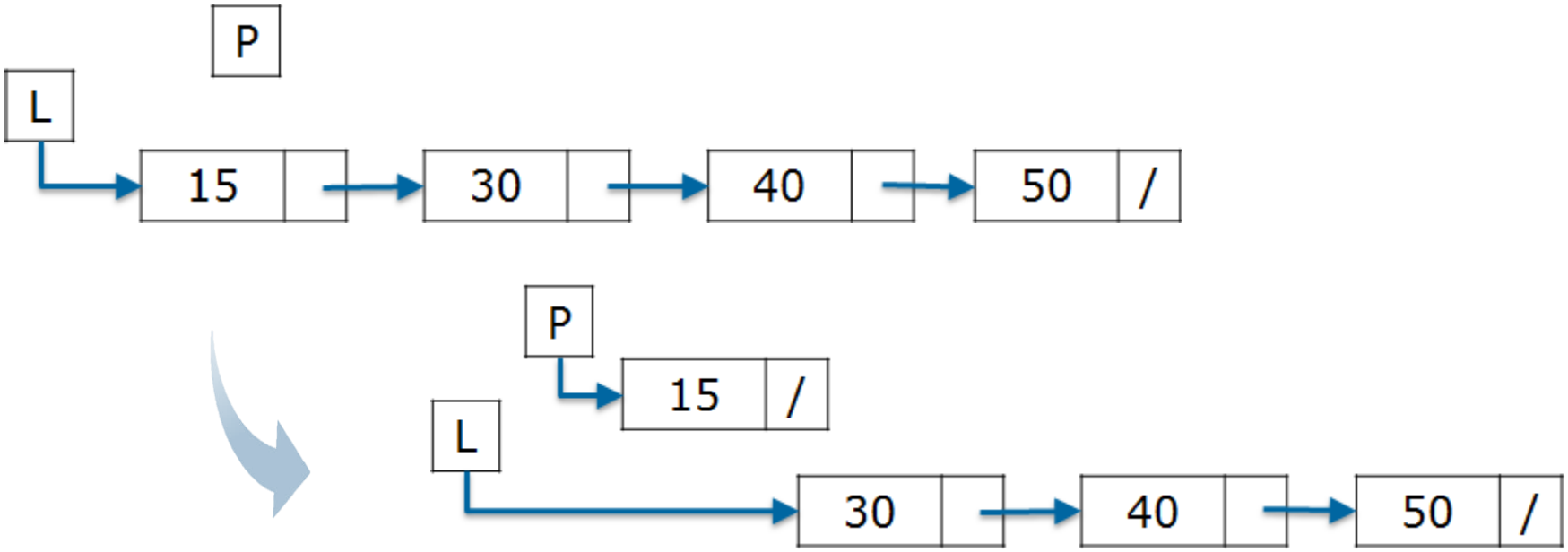


Deleting the Element

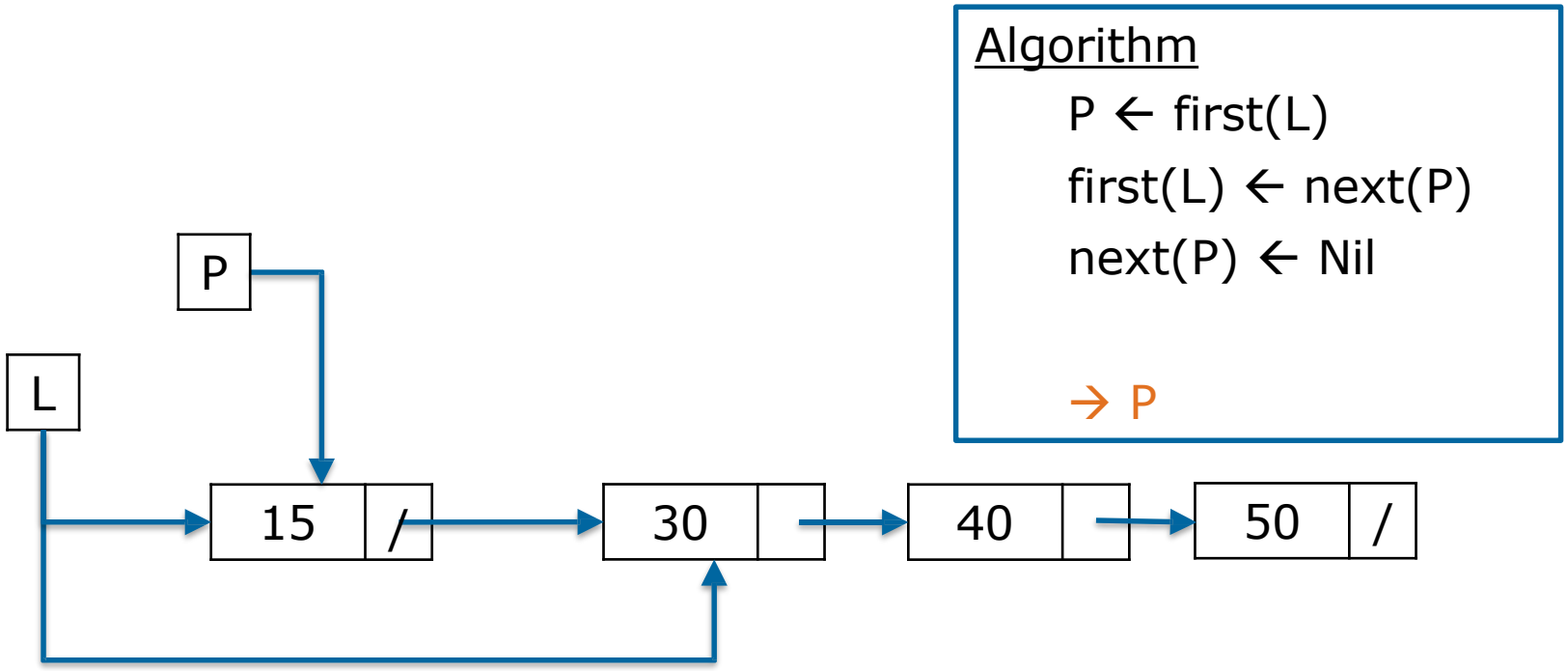
- **Delete first**
  - Remove the first element of the list
- **Delete last**
  - Remove the last element of the list
- **Delete after**
  - Remove an element next to a particular element

Delete First

- Remove the first element of L

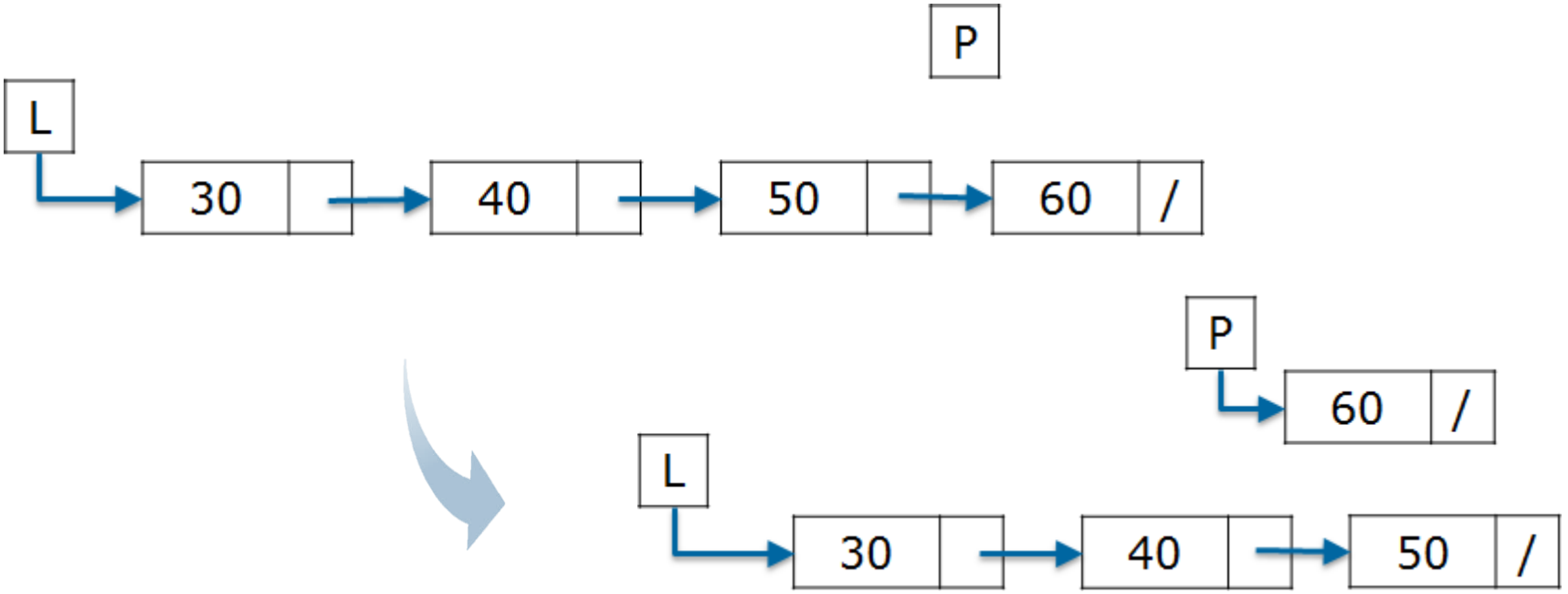


Delete First



Delete Last

- Remove the last element of L



Delete Last

Dictionary

Q : address

Algorithm

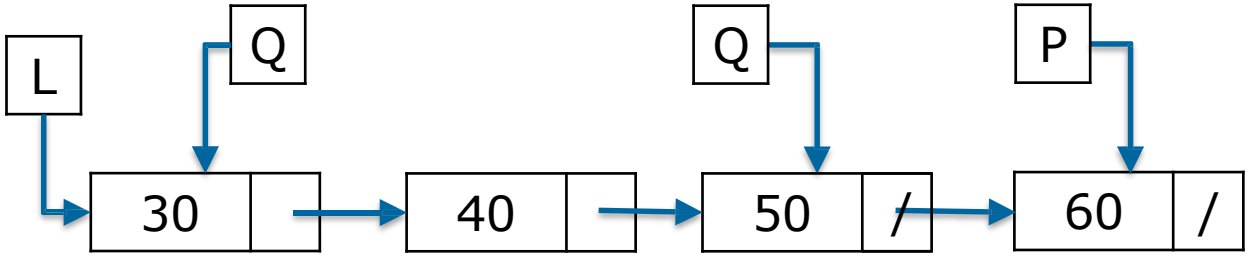
Q ← first(L)

/* create a mechanism so that Q points the element **before** the last element */

P ← next(Q)

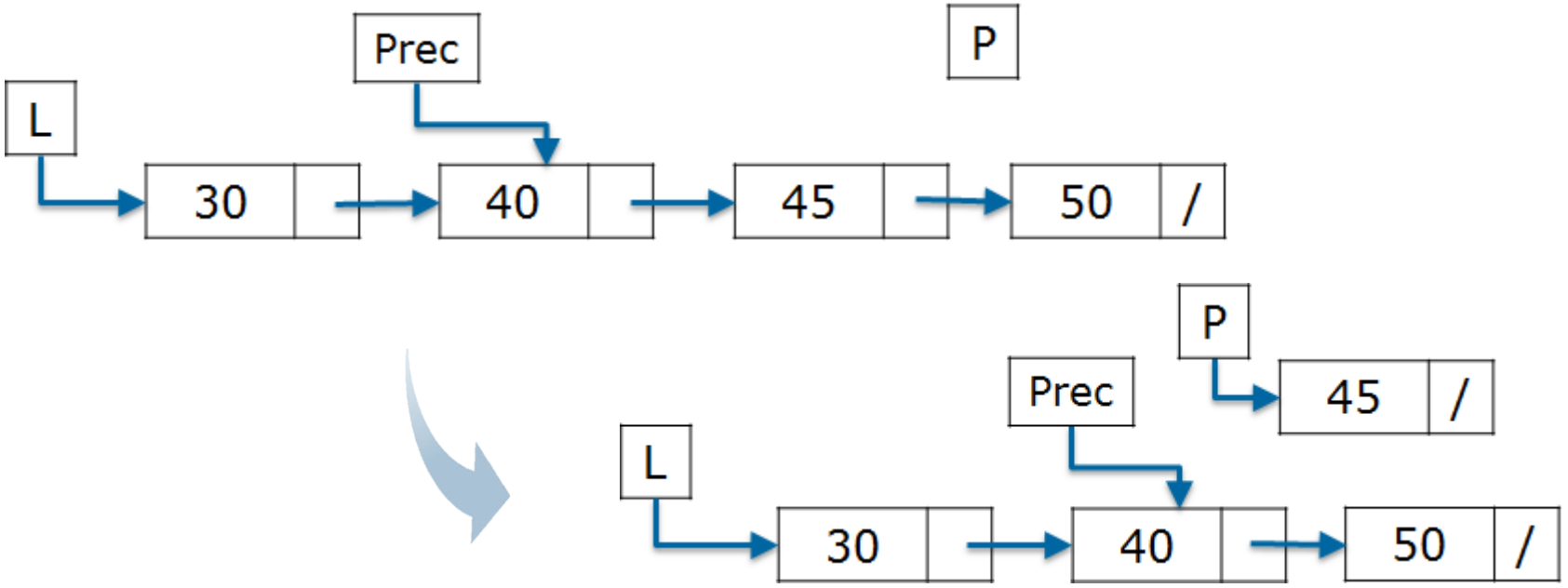
next(Q) ← Nil

→ P



Delete After

- Remove element after the element pointed by Prec

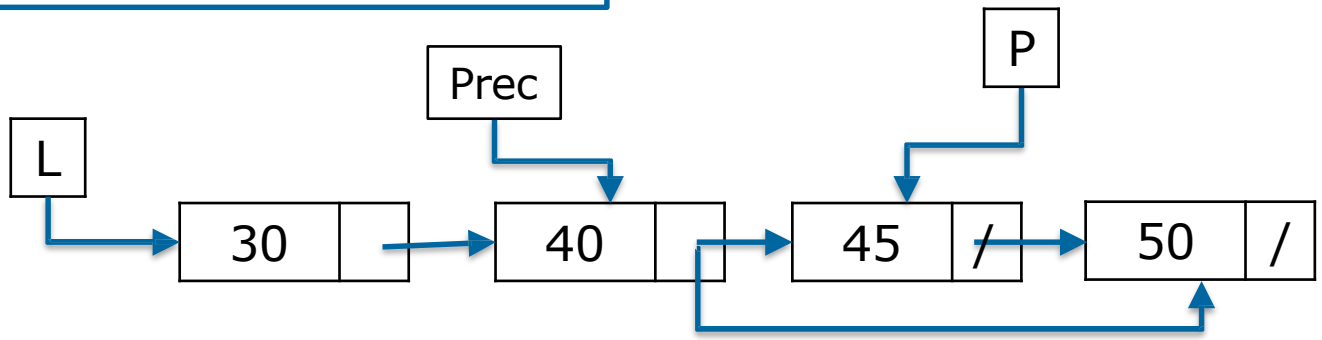


Delete After

Algorithm

P ← next (Prec)
next(Prec) ← next(P)
next(P) ← Nil

→ P



Mind the special conditions

- Empty list
- Only 1 element in list

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THANK YOU