

Short Exam No. 2

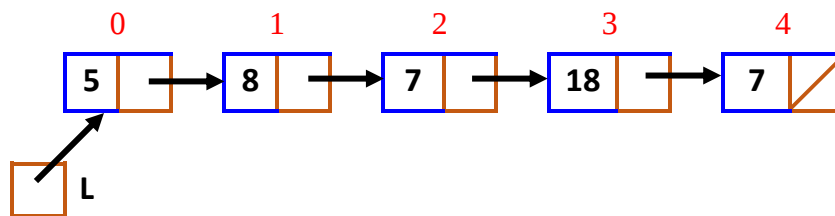
Exercise :

Write a function that takes as input a value v and a linked list of integers L and that returns the index of the element containing the first occurrence of v in L . If the value v is not found in the linked list, the function should return -1.

Note: indexing starts from 0.

Example:

Suppose that the linked list L is the following:



If $v = 7 \rightarrow$ the function should return **2**.

If $v = 4 \rightarrow$ the function should return **-1**.

Short Exam No. 2 – Solution Key

Solution 1 (9 pts):

```
Function indexValue (L:List,v:integer):integer; .....(0.75)
Var p:List;i:integer;tr:boolean; .....(0.75)
Begin
i ← -1; .....(0.5)
p ← L; .....(0.5)
tr ← False; .....(0.5)
While p≠Nil and tr=False Do .....(1)
    Begin.....(0.25)
        i ← i+1; .....(0.75)
        If p^.val=v then tr ← True.....(1.25)
        Else p ← p^.next; .....(1)
        End; .....(0.25)
    If tr=true then indexValue ← i.....(0.75)
    Else indexValue ← -1; .....(0.75)
End;
```

Solution 2 (9 pts):

```
Function indexValue (L:List,v:integer):integer; .....(0.75)
Var p:List;i,ind:integer; .....(0.75)
Begin
i ← -1; .....(0.75)
p ← L; .....(0.75)
ind ← -1; .....(0.75)
While p≠Nil and ind=-1 Do .....(1)
    Begin.....(0.25)
        i ← i+1; .....(0.75)
        If p^.val=v then ind ← i.....(1.25)
        Else p ← p^.next; .....(1)
        End; .....(0.25)
    indexValue ← ind; .....(0.75)
End;
```