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LAB- 9.

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1) WAP Implement doubly link list with primitive operations a) Create a doubly link list. b) Insert a new node to the left of the node. c) Delete the node based on a specific value d) Display the contents of the list.

→
```
#include <stdio.h>
#include <stdlib.h>
struct node
{   int data;
    struct node * next;
    struct node * prev;
};
struct node * head = NULL;
void insert_left()
{   struct node * new_node;
    new_node = (struct node*) malloc (sizeof (struct node));
    printf("Enter the item\n");
    scanf("%d", &newnode->data);
    new_node -> next = NULL;
    new_node -> prev = NULL;
}
if (head == NULL)
{   head = new_node; }
else
{   new_node -> next = head;
    head -> prev = new_node;
    head = new_node;
}
```


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```
void insert_right()
{   struct node * new_node, * temp;
    new_node =(struct node*) malloc (sizeof(struct node));
    printf("Enter the item\n");
    scanf("%d", &new_node → data);
    new_node → next = NULL;
    new_node → prev = NULL;
    if (head == NULL)
{   head = new_node; }
else
{   temp=head;
    while (temp → next != NULL)
    temp= temp → next;
    temp → next = new_node;
    new_node → prev = temp;
}
}
void del()
{   struct node * temp;
    int ele;
    if (head == NULL)
{   printf("Empty List\n");
    return;
}
printf("Enter the element to be deleted\n");
scanf("%d", &ele);
temp=head;
while (temp → data != ele)
{   temp= temp → next;
    if (temp == NULL)
{   printf("Element is not in list\n");
    break;
}}
```


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```
if (temp==head)
{     head= head→next; }
else if (temp→next= NULL)
{     temp= temp→prev;
      temp→next=NULL;
}
else
{  temp→ prev→next= temp→next;
   temp→next→ prev= temp→prev;
   }
}
void display()
{     struct node * ptr;
      ptr=head;
      while (ptr!=NULL)
{     printf("%d\t", ptr→data);
      ptr = ptr→next;
   }
      printf("\n");
}
int main()
{     int choice;
      while(1)
{     printf(" 1. Insert at left \n");
      printf(" 2. Insert at right \n");
      printf (" 3. Delete \n");
      printf (" 4. Display \n");
      printf (" 5. Exit \n");
      scanf (" %d", &choice);
      switch (choice)
{ Case 1: insert_left();
          break;
```

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```
            case 2: insert_right();
                    break;
            case 3: del();
                    break;
            case 4: display();
                    break;
            case 5: exit(0);
        }
    }
```


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