WEEK 4

THREE WAYS DELETION

```
#include <stdio.h>
#include <stdlib.h>

struct node
{
    int data;
    struct node *next;
};

struct node *head=NULL;

void dbegin()
{
    struct node*ptr;
    if(head==NULL)
    {
        printf("List is empty\n");
    }
    else
    {
        ptr=head;
        head=head->next;
        free(ptr);
        printf("First element is deleted\n");
    }
}

void dend()
{
    struct node*ptr;
    struct node*ptr1;
    if(head==NULL)
    {
        printf("List is empty\n");
    }
    else if(head->next==NULL)
    {
        free(head);
    }
    else
    {
        ptr=head;
        while(ptr->next!=NULL)
        {
            ptr1=ptr;
            ptr=ptr->next;
        }
```

```
        free(ptr);
        ptr1->next=NULL;
        printf("Element at the end is deleted\n");
    }
}

void dpos()
{
    struct node*ptr;
    struct node*ptr1;
    int pos,i;
    printf("Enter the position from which data to be deleted\n");
    scanf("%d",&pos);
    ptr=head;
    if(head==NULL)
    {
        printf("List is empty\n");
    }
    else if(head->next==NULL)
    {
        free(head);
    }
    for(i=0;i<pos;i++)
    {
        ptr1=ptr;
        ptr=ptr->next;
    }
    ptr1->next=ptr->next;
    free(ptr);
    printf("Element at the position %d is deleted\n",pos);
}

void display()
{
    struct node *node=head;
    if(head==NULL)
    {
        printf("List is empty\n");
    }
    else
    {
        while(node!=NULL)
        {
            printf("%d->",node->data);
            node=node->next;
        }
        printf("\n");
    }
}

void main()
```

```
{
    int n,i,data;
    printf("Enter the number of elements in linked list\n");
    scanf("%d",&n);
    printf("Enter the data to be inserted\n");
    for(i=0;i<n;i++)
    {
    struct node *last=head;
    struct node *new_node;
    new_node=(struct node*)malloc(sizeof(struct node));
    scanf("%d",&data);
    new_node->data=data;
    new_node->next=NULL;
    if(head==NULL)
    {
       head=new_node;
    }
    else
    {
    while(last->next!=NULL)
    {
       last=last->next;
    }
    last->next=new_node;
    }
    }
    int ch;
    printf("Enter\n 1:Delete from beginning\n 2:Delete at the end\n 3:Delete at particular
position\n 4:Display elements\n 5:Exit\n");
    while(ch!=5)
    {
      printf("Enter your choice\n");
      scanf("%d",&ch);
      switch(ch)
      {
          case 1:dbegin();
                 break;
          case 2:dend();
                 break;
          case 3:dpos();
                 break;
          case 4:display();
                 break;
      }

    }
}
```

OUTPUT:

```
Enter the number of elements in linked list
4
Enter the data to be inserted
1
2
3
4
Enter
 1:Delete from beginning
 2:Delete at the end
 3:Delete at particular position
 4:Display elements
 5:Exit
Enter your choice
1
First element is deleted
Enter your choice
2
Element at the end is deleted
Enter your choice
4
2->3->
Enter your choice
3
Enter the position from which data to be deleted
1
Element at the position 1 is deleted
Enter your choice
4
2->
Enter your choice
5

Process returned 5 (0x5)   execution time : 38.157 s
Press any key to continue.
```