**#include <stdio.h>**

**#include <stdlib.h>**

**struct Node**

**{**

**int data;**

**struct Node \*next;**

**struct Node \*previous;**

**};**

**struct Node \*head=NULL;**

**void insert(int position)**

**{**

**int pos;**

**struct Node \*node=head;**

**for(pos=1; pos<=position; pos++)**

**{**

**if(node==NULL && !(head==NULL && position==1))**

**{**

**printf("The given position is longer than the linked list. Please enter another position.");**

**return;**

**}**

**if(pos==position)**

**{**

**break;**

**}**

**node=(\*node).next;**

**}**

**int data;**

**printf("Enter the data to be entered in the new node ");**

**scanf("%d", &data);**

**struct Node \*newNode;**

**newNode=malloc(sizeof(struct Node));**

**(\*newNode).data=data;**

**(\*newNode).next=node;**

**if(head==NULL)**

**{**

**(\*newNode).previous=NULL;**

**head=newNode;**

**}**

**else{**

**(\*newNode).previous=(\*node).previous;**

**struct Node \*previous;**

**previous=(\*node).previous;**

**(\*node).previous=newNode;**

**if(previous==NULL)**

**{**

**head=newNode;**

**}**

**else**

**{**

**(\*previous).next=newNode;**

**}**

**}**

**}**

**void delete\_based\_on\_a\_value(int value)**

**{**

**struct Node \*node=head;**

**int first\_time=1;**

**while(1)**

**{**

**if(node==NULL)**

**{**

**printf("Cannot delete from an empty list.");**

**return;**

**}**

**for(node=head; node!=NULL; node=(\*node).next)**

**{**

**if((\*node).data==value)**

**{**

**break;**

**}**

**}**

**if(node==NULL)**

**{**

**if(first\_time==1)**

**{**

**printf("The node with the given value is not found in the linked list.");**

**}**

**return;**

**}**

**else**

**{**

**if((\*node).previous==NULL)**

**{**

**head=(\*node).next;**

**}**

**else**

**{**

**(\*(\*node).previous).next=(\*node).next;**

**}**

**if((\*node).next!=NULL)**

**{**

**(\*(\*node).next).previous=(\*node).previous;**

**}**

**free(node);**

**}**

**first\_time=0;**

**}**

**}**

**void display()**

**{**

**if(head==NULL)**

**{**

**printf("The linked list is empty.");**

**}**

**else**

**{**

**struct Node \*node;**

**for(node=head; node!=NULL; node=(\*node).next)**

**{**

**printf("%d ", (\*node).data);**

**}**

**}**

**}**

**void main()**

**{**

**while(1)**

**{**

**int ch;**

**printf("Enter 1 to insert, 2 to delete an element based on its value, 3 to display the elements of the linked list and 4 to exit. ");**

**scanf("%d", &ch);**

**if(ch==1)**

**{**

**int data, position;**

**printf("Enter the position to the left of which you want to enter the data. ");**

**scanf("%d", &position);**

**insert(position);**

**}**

**else if(ch==2)**

**{**

**int value;**

**printf("Enter the value for which you want to delete from the linked list. ");**

**scanf("%d", &value);**

**delete\_based\_on\_a\_value(value);**

**}**

**else if(ch==3)**

**display();**

**else if(ch==4)**

**{**

**break;**

**}**

**else**

**{**

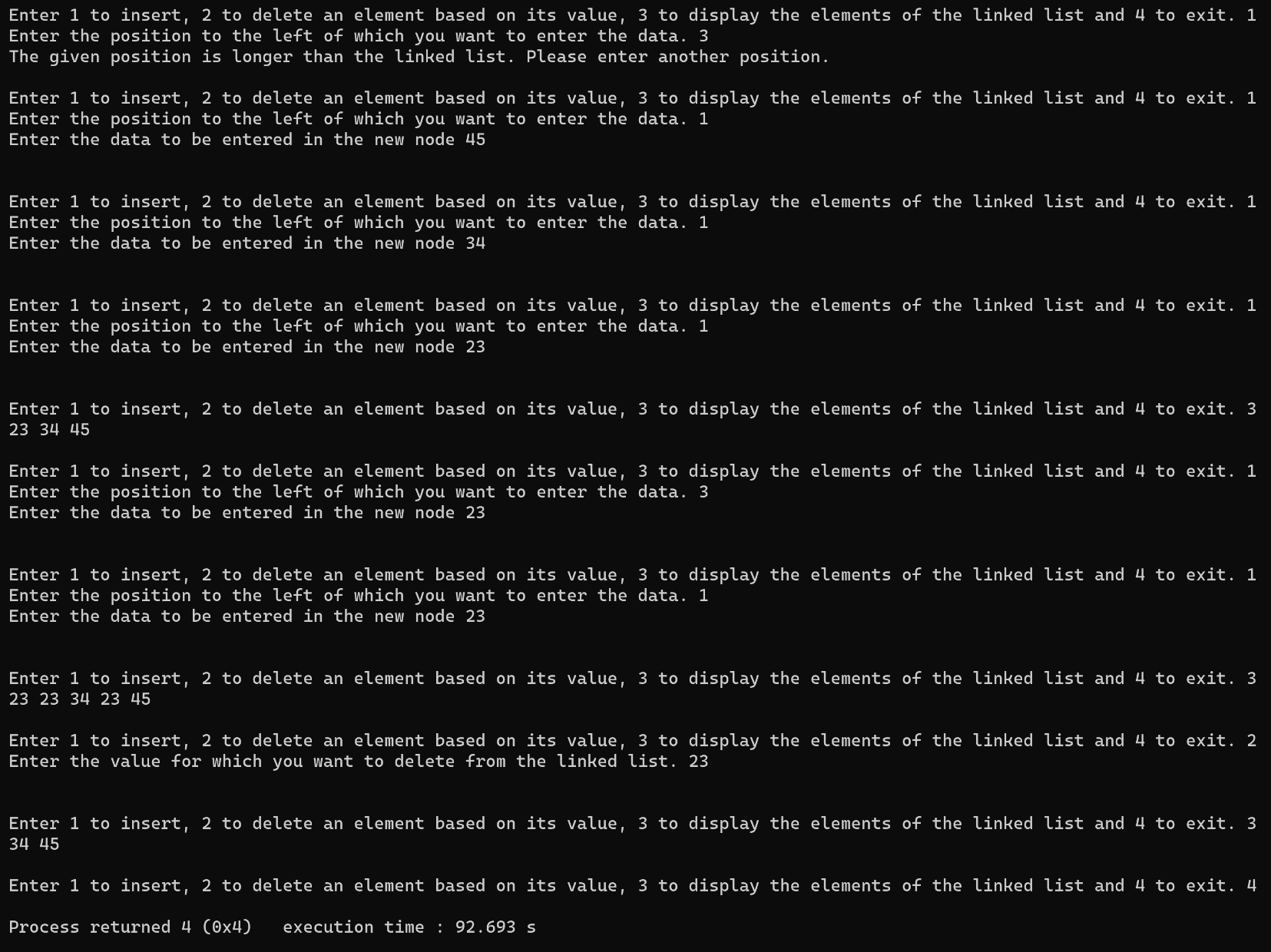
**printf("Invalid character");**

**}**

**printf("\n\n");**

**}**

**}**

****