**#include <stdio.h>**

**#include <stdlib.h>**

**struct Node**

**{**

**int data;**

**struct Node \*next;**

**};**

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

**void push()**

**{**

**struct Node \*new\_node=malloc(sizeof(struct Node));**

**int data;**

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

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

**(\*new\_node).data=data;**

**(\*new\_node).next=head;**

**head=new\_node;**

**}**

**void append()**

**{**

**struct Node \*new\_node=malloc(sizeof(struct Node));**

**int data;**

**struct Node \*last=head;**

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

**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;**

**}**

**}**

**void insert\_at\_pos(int pos)**

**{**

**struct Node \*new\_node=malloc(sizeof(struct Node));**

**struct Node \*temp=head;**

**int data;**

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

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

**(\*new\_node).data=data;**

**if(pos==1)**

**{**

**(\*new\_node).next=head;**

**head=new\_node;**

**return;**

**}**

**int position=1;**

**while(1)**

**{**

**if(position==pos-1)**

**break;**

**else**

**{**

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

**position=position+1;**

**}**

**}**

**(\*new\_node).next=(\*temp).next;**

**(\*temp).next=new\_node;**

**}**

**void Pop()**

**{**

**if(head==NULL)**

**printf("The linked list is empty. You cannot delete from an empty list.");**

**else**

**{**

**struct Node \*ptr=head;**

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

**free(ptr);**

**}**

**}**

**void End\_delete()**

**{**

**if(head==NULL)**

**printf("The linked list is empty. You cannot delete from an empty list.");**

**else if((\*head).next==NULL)**

**{**

**free(head);**

**head=NULL;**

**}**

**else**

**{**

**struct Node \*ptr1=head;**

**struct Node \*ptr=(\*ptr1).next;**

**while((\*ptr).next!=NULL)**

**{**

**ptr1=(\*ptr1).next;**

**ptr=(\*ptr1).next;**

**}**

**(\*ptr1).next=NULL;**

**free(ptr);**

**}**

**}**

**void Delete\_at\_pos(int pos)**

**{**

**if(head==NULL)**

**printf("The linked list is empty. You cannot delete from an empty list.");**

**else if(pos==1)**

**{**

**struct Node \*ptr1=(\*head).next;**

**free(head);**

**head=ptr1;**

**}**

**else**

**{**

**int position=2;**

**struct Node \*ptr1=head;**

**struct Node \*ptr=(\*ptr1).next;**

**while(1)**

**{**

**if(ptr==NULL)**

**{**

**printf("There are less than required elements in the list.");**

**return;**

**}**

**if(position==pos)**

**{**

**(\*ptr1).next=(\*ptr).next;**

**free(ptr);**

**break;**

**}**

**position=position+1;**

**ptr1=(\*ptr1).next;**

**ptr=(\*ptr1).next;**

**}**

**}**

**}**

**void display()**

**{**

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

**while(node!=NULL)**

**{**

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

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

**}**

**}**

**void main()**

**{**

**int choice;**

**while(1)**

**{**

**printf("Enter 1 to insert at the beginning, 2 to append at the end, 3 to insert in the middle, 4 to delete from the beginning, 5 to delete from the end, 6 to delete from the middle, 7 to display the contents, and 8 to exit. ");**

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

**if(choice==1)**

**push();**

**else if(choice==2)**

**append();**

**else if(choice==3)**

**{**

**int position;**

**printf("Enter the position to insert the node. ");**

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

**insert\_at\_pos(position);**

**}**

**else if(choice==4)**

**Pop();**

**else if(choice==5)**

**End\_delete();**

**else if(choice==6)**

**{**

**int position;**

**printf("Enter the position to delete from the list. ");**

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

**Delete\_at\_pos(position);**

**}**

**else if(choice==7)**

**display();**

**else if(choice==8)**

**break;**

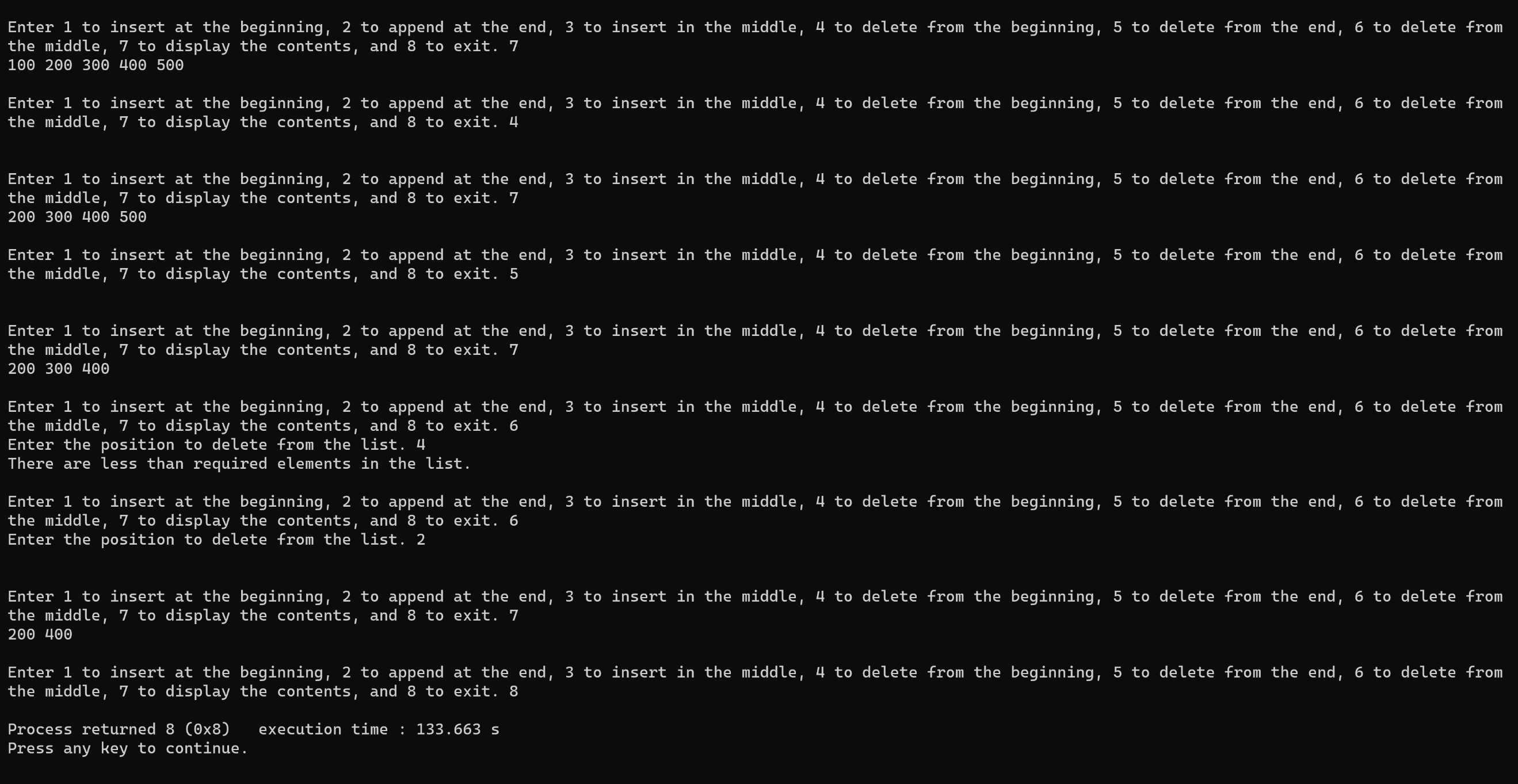
**else**

**printf("Invalid input entered.");**

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

**}**

**}**

****