```
/*linkedlist traversal,insertion,deletion,searching*/
#include<stdio.h>
#include<stdlib.h>
struct node
{
	int data;
	struct node *next;
};
struct node*head;
void beginsert();
void lastinsert();
void randominsert();
void begin_delete();
void last_delete();
void random_delete();
void search();
void display();
int main()
{
	int choice=0;
	while(choice!=9)
	{
		printf("**main menu**\n");
		printf("choose one option from the following list...\n");
		printf("1.insert in begining\n2.insert at last\n3.insert at any random
location\n4.delete from the begining\n5.delete from the last\n6.delete node after specefide
location\n7.search for an element\n8.show\n9.exit\n");
		printf("enter your choice\n");
		scanf("%d",&choice);
		switch(choice)
		{
```

```
                        case 1:beginsert();
                        break;
                        case 2:lastinsert();
                        break;
                        case 3:randominsert();
                        break;
                        case 4:begin_delete();
                        break;
                        case 5:last_delete();
                        break;
                        case 6:random_delete();
                        break;
                        case 7:search();
                        break;
                        case 8:display();
                        break;
                        case 9:exit(0);
                        break;
                        default:
                                printf("invalid choice\n");
                }
        }
}
void beginsert()
{
        struct node*ptr;
        int item;
        ptr=(struct node*)malloc(sizeof(struct node*));
        if(ptr==NULL)
        {
                printf("OVERFLOW\n");
```

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	}
	else
	{
		printf("enter value\n");
		scanf("%d",&item);
		ptr->data=item;
		ptr->next=head;
		head=ptr;
		printf("node inserted\n");
	}
}
void lastinsert()
{
	struct node*ptr,*temp;
	int item;
	ptr=(struct node*)malloc(sizeof(struct node*));
	if(ptr==NULL)
	{
			printf("OVERFLOW\n");
	}
	else
	{
		printf("enter value\n");
		scanf("%d",&item);
		ptr->data=item;
		if(head==NULL) //for one node
		{
			ptr->next=NULL;
			head=ptr;
			printf("node inserted\n");
		}
```

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                else
                {
                        temp=head; //for many nodes
                        while(temp->next!=NULL)
                        {
                                temp=temp->next;
                        }
                        temp->next=ptr;
                        ptr->next=NULL;
                        printf("node inserted\n");
                }
        }
}
void randominsert()
{
        int i,loc,item;
        struct node*ptr,*temp;
        ptr=(struct node*)malloc(sizeof(struct node*));
        if(ptr==NULL)
        {
                printf("OVERFLOW\n");
        }
        else
        {
                printf("enter element value\n");
                scanf("%d",&item);
                ptr->data=item;
                printf("enter the location after which you want to insert\n");
                scanf("%d",&loc);
                temp=head;
                for(i=0;i<loc;i++)
```
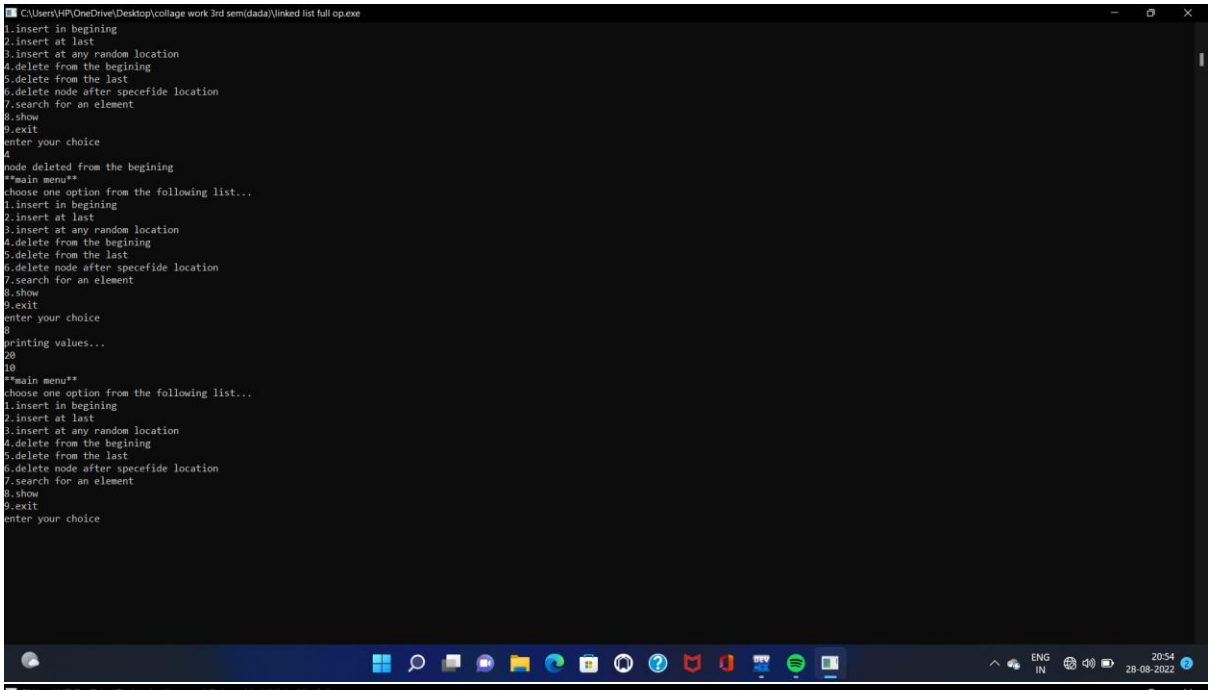

```
                {
                        temp=temp->next;
                        if(temp==NULL)
                        {
                                printf("can not insert\n");
                                return ;
                        }
                }
                ptr->next=temp->next;
                temp->next=ptr;
                printf("node inserted\n");
        }
}
void begin_delete()
{
        struct node*ptr;
        if(head==NULL)
        {
                printf("list is empty\n");
        }
        else
        {
                ptr=head;
                head=ptr->next;
                free(ptr);
                printf("node deleted from the begining\n");
        }
}
void last_delete()
{
        struct node*ptr;
```

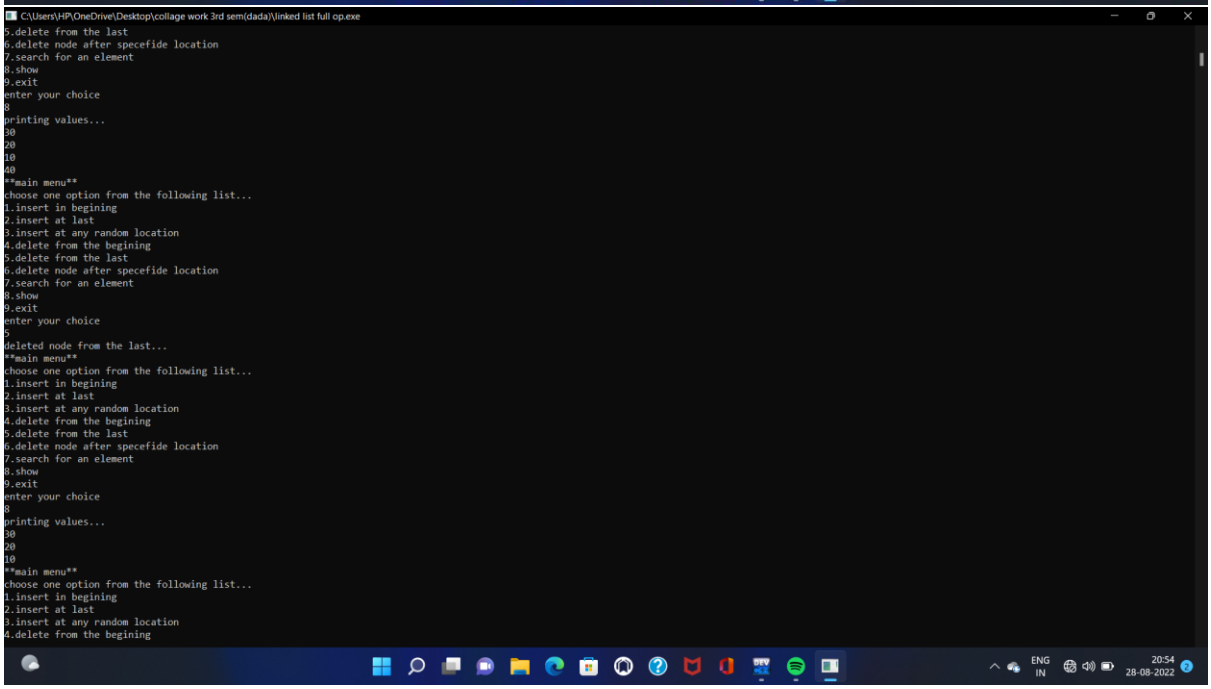
```
        struct node*ptr1;
        if(head==NULL)
        {
                printf("list is empty\n");
        }
        else if(head->next==NULL)
        {
                head=NULL;
                free(head);
                printf("only node of the list deleted\n");
        }
        else
        {


                        ptr=head;
                        while(ptr->next!=NULL)
                        {
                                ptr1=ptr;


                        ptr=ptr->next;
                }
                ptr1->next=NULL;
                free(ptr);
                printf("deleted node from the last...\n");



        }
}
void random_delete()
{
```

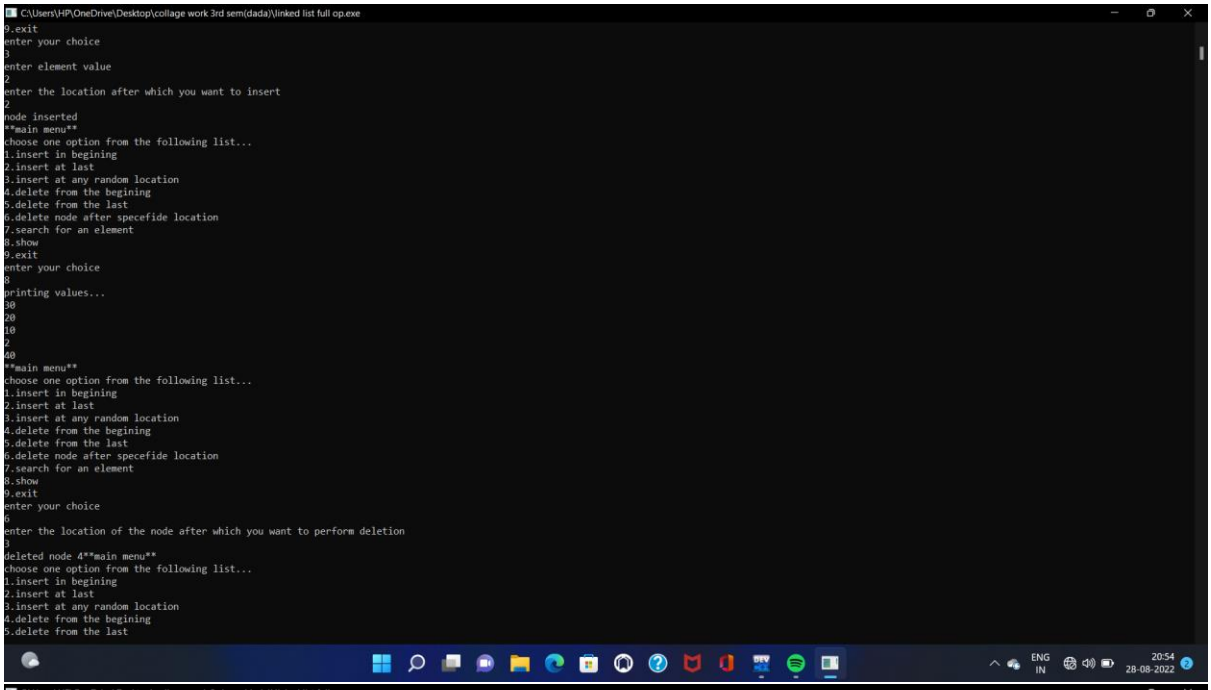
```
        struct node*ptr,*ptr1;
        int loc,i;
        printf("enter the location of the node after which you want to perform deletion\n");
        scanf("%d",&loc);
        ptr=head;
        for(i=0;i<loc;i++)
        {
                ptr1=ptr;
                ptr=ptr->next;
                if(ptr==NULL)
                {
                        printf("can not delete\n");
                        return;
                }
        }
        ptr1->next=ptr->next;
        free(ptr);
        printf("deleted node %d",loc+1);
}
void search()
{
        struct node*ptr;
        int item,i=0,flag=0,loc;
        ptr=head;
        if(ptr==NULL)
        {
                printf("empty list\n");

        }
        else
        {
```

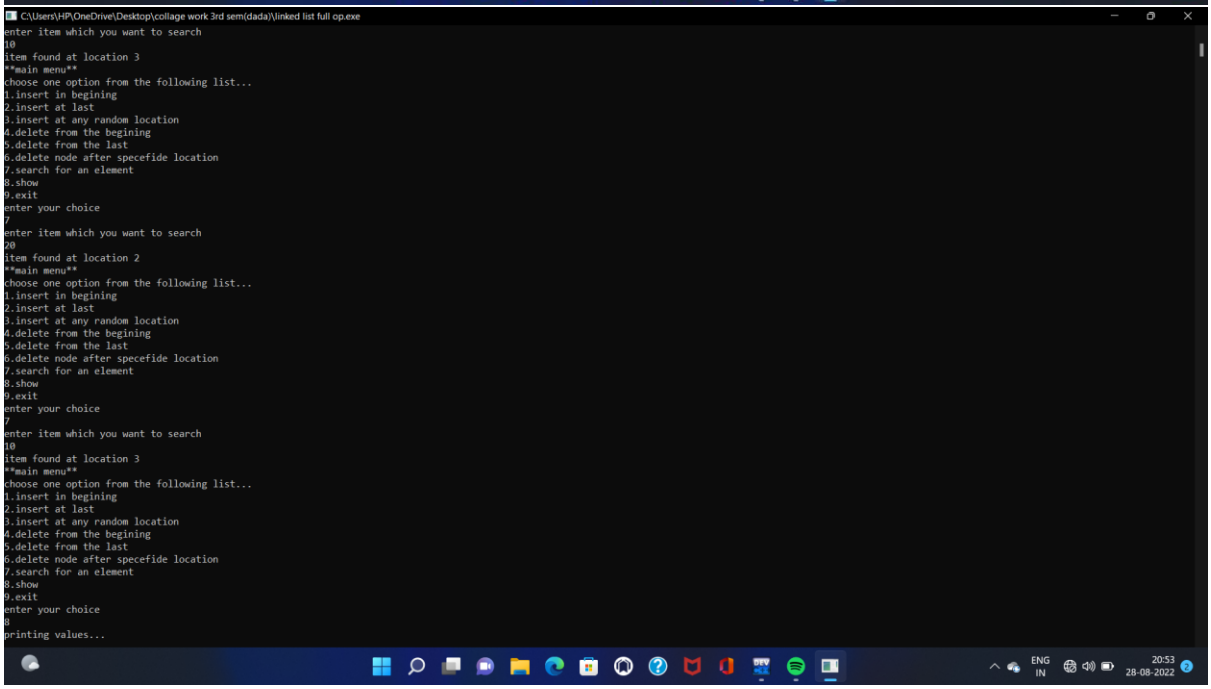
```
                printf("enter item which you want to search\n");
                scanf("%d",&item);
                while(ptr!=NULL)
                {
                        if(ptr->data==item)
                        {
                                flag=1;
                                loc=i+1;
                                break;
                        }
                        else
                        {
                                flag=0;
                        }
                        ++i;
                        ptr=ptr->next;
                }
                if(flag==0)
                {
                        printf("item not found\n");
                }
                else
                {
                        printf("item found at location %d\n",loc);
                }
        }
}
void display() //traversal
{
        struct node*ptr;
        ptr=head;
```

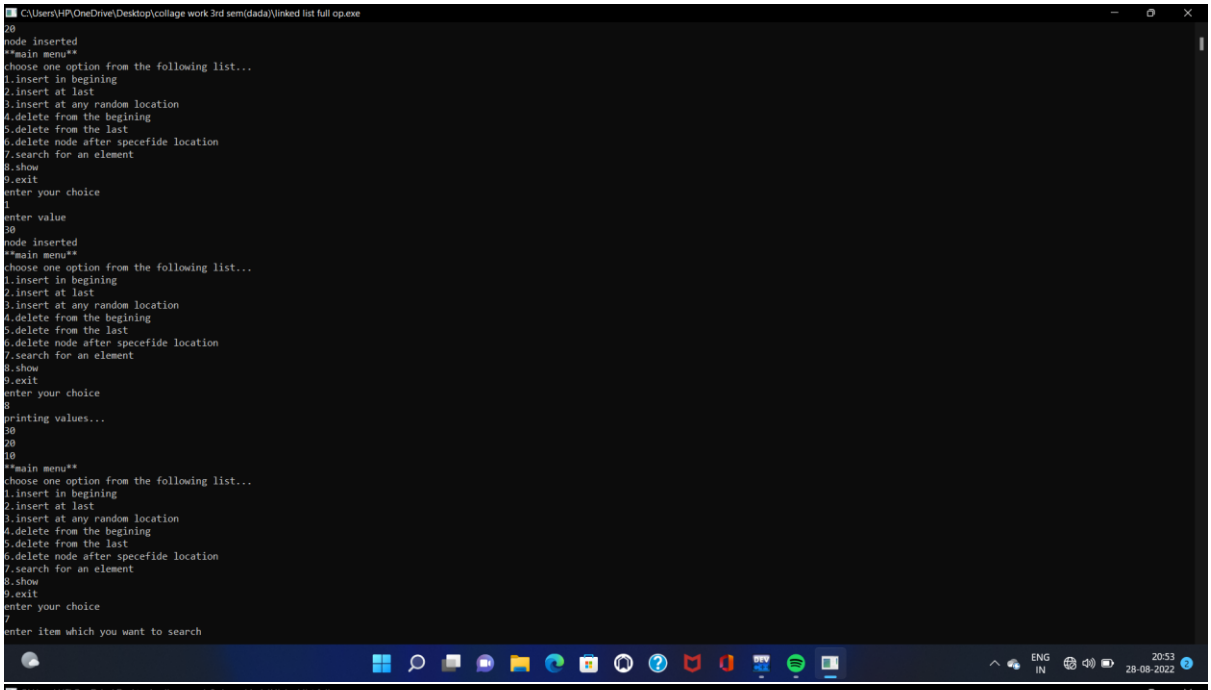
```
        if(ptr==NULL)
        {
                printf("nothing to print\n");
        }
        else
        {
                printf("printing values...\n");
                while(ptr!=NULL)
                {
                        printf("%d\n",ptr->data);
                        ptr=ptr->next;
                }
        }
}
```

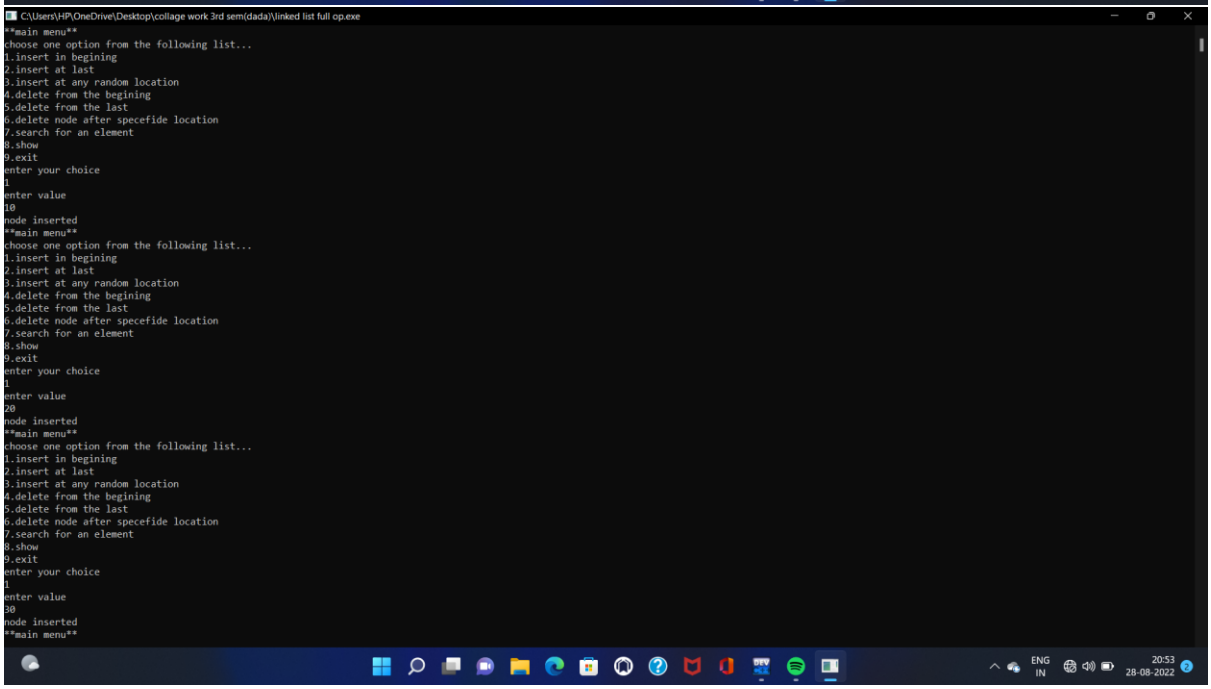

C:\Users\HP\OneDrive\Desktop\collage work 3rd sem(dada)\linked list full op.exe
1.insert in begining
2.insert at last
3.insert at any random location
4.delete from the begining
5.delete from the last
6.delete node after specefide location
7.search for an element
8.show
9.exit
enter your choice
4
node deleted from the begining
main menu
choose one option from the following list...
1.insert in begining
2.insert at last
3.insert at any random location
4.delete from the begining
5.delete from the last
6.delete node after specefide location
7.search for an element
8.show
9.exit
enter your choice
8
printing values...
20
10
main menu
choose one option from the following list...
1.insert in begining
2.insert at last
3.insert at any random location
4.delete from the begining
5.delete from the last
6.delete node after specefide location
7.search for an element
8.show
9.exit
enter your choice
ENG
IN
20:54
28-08-2022


C:\Users\HP\OneDrive\Desktop\collage work 3rd sem(dada)\linked list full op.exe
5.delete from the last
6.delete node after specefide location
7.search for an element
8.show
9.exit
enter your choice
8
printing values...
30
20
10
40
main menu
choose one option from the following list...
1.insert in begining
2.insert at last
3.insert at any random location
4.delete from the begining
5.delete from the last
6.delete node after specefide location
7.search for an element
8.show
9.exit
enter your choice
5
deleted node from the last...
main menu
choose one option from the following list...
1.insert in begining
2.insert at last
3.insert at any random location
4.delete from the begining
5.delete from the last
6.delete node after specefide location
7.search for an element
8.show
9.exit
enter your choice
8
printing values...
30
20
10
main menu
choose one option from the following list...
1.insert in begining
2.insert at last
3.insert at any random location
4.delete from the begining
ENG
IN
20:54
28-08-2022


C:\Users\HP\OneDrive\Desktop\collage work 3rd sem(dada)\linked list full op.exe
9.exit
enter your choice
3
enter element value
2
enter the location after which you want to insert
2
node inserted
main menu
choose one option from the following list...
1.insert in begining
2.insert at last
3.insert at any random location
4.delete from the begining
5.delete from the last
6.delete node after specefide location
7.search for an element
8.show
9.exit
enter your choice
8
printing values...
30
20
10
2
40
main menu
choose one option from the following list...
1.insert in begining
2.insert at last
3.insert at any random location
4.delete from the begining
5.delete from the last
6.delete node after specefide location
7.search for an element
8.show
9.exit
enter your choice
6
enter the location of the node after which you want to perform deletion
3
deleted node 4**main menu**
choose one option from the following list...
1.insert in begining
2.insert at last
3.insert at any random location
4.delete from the begining
5.delete from the last
ENG
IN
20:54
28-08-2022


C:\Users\HP\OneDrive\Desktop\collage work 3rd sem(dada)\linked list full op.exe
enter item which you want to search
10
item found at location 3
main menu
choose one option from the following list...
1.insert in begining
2.insert at last
3.insert at any random location
4.delete from the begining
5.delete from the last
6.delete node after specefide location
7.search for an element
8.show
9.exit
enter your choice
7
enter item which you want to search
20
item found at location 2
main menu
choose one option from the following list...
1.insert in begining
2.insert at last
3.insert at any random location
4.delete from the begining
5.delete from the last
6.delete node after specefide location
7.search for an element
8.show
9.exit
enter your choice
7
enter item which you want to search
10
item found at location 3
main menu
choose one option from the following list...
1.insert in begining
2.insert at last
3.insert at any random location
4.delete from the begining
5.delete from the last
6.delete node after specefide location
7.search for an element
8.show
9.exit
enter your choice
8
printing values...
ENG
IN
20:53
28-08-2022


C:\Users\HP\OneDrive\Desktop\collage work 3rd sem(dada)\linked list full op.exe
20
node inserted
main menu
choose one option from the following list...
1.insert in begining
2.insert at last
3.insert at any random location
4.delete from the begining
5.delete from the last
6.delete node after specefide location
7.search for an element
8.show
9.exit
enter your choice
1
enter value
30
node inserted
main menu
choose one option from the following list...
1.insert in begining
2.insert at last
3.insert at any random location
4.delete from the begining
5.delete from the last
6.delete node after specefide location
7.search for an element
8.show
9.exit
enter your choice
8
printing values...
30
20
10
main menu
choose one option from the following list...
1.insert in begining
2.insert at last
3.insert at any random location
4.delete from the begining
5.delete from the last
6.delete node after specefide location
7.search for an element
8.show
9.exit
enter your choice
7
enter item which you want to search
ENG
IN
20:53
28-08-2022


C:\Users\HP\OneDrive\Desktop\collage work 3rd sem(dada)\linked list full op.exe
main menu
choose one option from the following list...
1.insert in begining
2.insert at last
3.insert at any random location
4.delete from the begining
5.delete from the last
6.delete node after specefide location
7.search for an element
8.show
9.exit
enter your choice
1
enter value
10
node inserted
main menu
choose one option from the following list...
1.insert in begining
2.insert at last
3.insert at any random location
4.delete from the begining
5.delete from the last
6.delete node after specefide location
7.search for an element
8.show
9.exit
enter your choice
1
enter value
20
node inserted
main menu
choose one option from the following list...
1.insert in begining
2.insert at last
3.insert at any random location
4.delete from the begining
5.delete from the last
6.delete node after specefide location
7.search for an element
8.show
9.exit
enter your choice
1
enter value
30
node inserted
main menu
ENG
IN
20:53
28-08-2022