#include<stdlib.h>

#include<stdio.h>

void create();

void display();

void insert\_begin();

void insert\_end();

void insert\_pos();

void delete\_begin();

void delete\_end();

void delete\_pos();

struct node

{

int info;

struct node \*next;

};

struct node \*start=NULL;

int main()

{

int choice;

while(1)

{

printf("\n MENU \n");

printf("\n 1.Create \n");

printf("\n 2.Display \n");

printf("\n 3.Insert at the beginning \n");

printf("\n 4.Insert at the end \n");

printf("\n 5.Insert at specified position \n");

printf("\n 6.Delete from beginning \n");

printf("\n 7.Delete from the end \n");

printf("\n 8.Delete from specified position \n");

printf("\n 9.Exit \n");

printf("\n--------------------------------------\n");

printf("Enter your choice:\t");

scanf("%d",&choice);

switch(choice)

{

case 1:

create();

break;

case 2:

display();

break;

case 3:

insert\_begin();

break;

case 4:

insert\_end();

break;

case 5:

insert\_pos();

break;

case 6:

delete\_begin();

break;

case 7:

delete\_end();

break;

case 8:

delete\_pos();

break;

case 9:

exit(0);

break;

default:

printf("n Wrong Choice:\n");

break;

}

}

return 0;

}

void create()

{

struct node\*temp,\*ptr;

temp=(struct node \*)malloc(sizeof(struct node));

if(temp==NULL)

{

printf("\n Out of Memory Space \n");

exit(0);

}

printf("\nEnter the data value for next node:\t");

scanf("%d",&temp->info);

temp->next=NULL;

if(start==NULL)

{

start=temp;

}

else

{

ptr=start;

while(ptr->next!=NULL)

{

ptr=ptr->next;

}

ptr->next=temp;

}

}

void display()

{

struct node \*ptr;

if(start==NULL)

{

printf("\nList is empty:\n");

return;

}

else

{

ptr=start;

printf("\nThe List elements are:\n");

while(ptr!=NULL)

{

printf("%d\t",ptr->info );

ptr=ptr->next ;

}

}

}

void insert\_begin()

{

struct node \*temp;

temp=(struct node \*)malloc(sizeof(struct node));

if(temp==NULL)

{

printf("\nnOut of Memory Space:\n");

return;

}

printf("\nEnter the data value for the node:\t" );

scanf("%d",&temp->info);

temp->next =NULL;

if(start==NULL)

{

start=temp;

}

else

{

temp->next=start;

start=temp;

}

}

void insert\_end()

{

struct node \*temp,\*ptr;

temp=(struct node \*)malloc(sizeof(struct node));

if(temp==NULL)

{

printf("\nOut of Memory Space:\n");

return;

}

printf("\nEnter the data value for the node:\t" );

scanf("%d",&temp->info );

temp->next =NULL;

if(start==NULL)

{

start=temp;

}

else

{

ptr=start;

while(ptr->next !=NULL)

{

ptr=ptr->next ;

}

ptr->next =temp;

}

}

void insert\_pos()

{

struct node \*ptr,\*temp;

int i,pos;

temp=(struct node \*)malloc(sizeof(struct node));

if(temp==NULL)

{

printf("\nOut of Memory Space:\n");

return;

}

printf("\nEnter the position for the new node to be inserted:\t");

scanf("%d",&pos);

printf("\nEnter the data value of the node:\t");

scanf("%d",&temp->info) ;

temp->next=NULL;

if(pos==0)

{

temp->next=start;

start=temp;

}

else

{

for(i=0,ptr=start;i<pos-1;i++) { ptr=ptr->next;

if(ptr==NULL)

{

printf("\nPosition not found:[Handle with care]\n");

return;

}

}

temp->next =ptr->next ;

ptr->next=temp;

}

}

void delete\_begin()

{

struct node \*ptr;

if(ptr==NULL)

{

printf("\nList is Empty:\n");

return;

}

else

{

ptr=start;

start=start->next ;

printf("\nThe deleted element is :%d\t",ptr->info);

free(ptr);

}

}

void delete\_end()

{

struct node \*temp,\*ptr;

if(start==NULL)

{

printf("\nList is Empty:");

exit(0);

}

else if(start->next ==NULL)

{

ptr=start;

start=NULL;

printf("\nThe deleted element is:%d\t",ptr->info);

free(ptr);

}

else

{

ptr=start;

while(ptr->next!=NULL)

{

temp=ptr;

ptr=ptr->next;

}

temp->next=NULL;

printf("\nThe deleted element is:%d\t",ptr->info);

free(ptr);

}

}

void delete\_pos()

{

int i,pos;

struct node \*temp,\*ptr;

if(start==NULL)

{

printf("\nThe List is Empty:\n");

exit(0);

}

else

{

printf("\nEnter the position of the node to be deleted:\t");

scanf("%d",&pos);

if(pos==0)

{

ptr=start;

start=start->next ;

printf("\nThe deleted element is:%d\t",ptr->info );

free(ptr);

}

else

{

ptr=start;

for(i=0;i<pos;i++) { temp=ptr; ptr=ptr->next ;

if(ptr==NULL)

{

printf("\nPosition not Found:\n");

return;

}

}

temp->next =ptr->next ;

printf("\nThe deleted element is:%d\t",ptr->info );

free(ptr);

}

}

}















