WEEK-06

Sort Reverse and Concatenate the linked list

#include<stdio.h>

#include<stdlib.h>

struct NODE{

int data;

struct NODE \*link;

};

typedef struct NODE node;

node \*start1=NULL,\*start2=NULL,\*start3=NULL,\*new,\*curr,\*temp=NULL;

void create\_list1();

void create\_list2();

void sort();

void search();

void concatenate();

void reverse();

void main()

{

int choice;

while(1)

{

printf("1.Createlist1 \n 2.Createlist2 \n 3.sort \n 4.search \n 5.concatenate \n 6.Reverse \n 7.Exit \n");

printf("Enter the choice:");

scanf("%d",&choice);

switch(choice)

{

case 1: create\_list1();

break;

case 2: create\_list2();

break;

case 3: sort();

break;

case 4: search();

break;

case 5: concatenate();

break;

case 6:reverse();

break;

case 7: exit(0);

break;

default:printf("Wrong Choice");

}

}

getch();

}

void create\_list1()

{

int ch;

start1=(node\*) malloc(sizeof(node));

curr=start1;

printf("Enter an element");

scanf("%d",&start1->data);

while(1)

{

printf("Do you want to enter a new element (1 for yes,any other number for no)");

scanf("%d",&ch);

if(ch==1)

{

new=(node\*) malloc(sizeof(node));

printf("Enter an element");

scanf("%d",&new->data);

curr->link=new;

curr=new;

}

else

{

curr->link=NULL;

break;

}

}

temp=start1;

printf("the elements in the list 1 are:\n");

while(temp!=NULL)

{

printf("%d\n",temp->data);

temp=temp->link;

}

}

void create\_list2()

{

int ch;

start2=(node\*) malloc(sizeof(node));

curr=start2;

printf("Enter an element");

scanf("%d",&start2->data);

while(1)

{

printf("Do you want to enter a new element (1 for yes,any other number for no)");

scanf("%d",&ch);

if(ch==1)

{

new=(node\*) malloc(sizeof(node));

printf("Enter an element");

scanf("%d",&new->data);

curr->link=new;

curr=new;

}

else

{

curr->link=NULL;

break;

}

}

temp=start2;

printf("the elements in the list 2 are:\n");

while(temp!=NULL)

{

printf("%d\n",temp->data);

temp=temp->link;

}

}

void search()

{

int x,ele;

printf("Enter 1 to search list 1,enter 2 to search list 2 ");

scanf("%d",&x);

if(x==1)

{

temp=start1;

}

else

{

temp=start2;

}

if(temp==NULL)

{

printf("Linked list is empty");

return;

}

printf("Enter element to be searched");

scanf("%d",&ele);

while(temp!=NULL)

{

if(temp->data==ele)

{

printf("Element found\n");

return;

}

temp=temp->link;

}

printf("Element not found\n");

}

void sort()

{

node \*a,\*b,\*temp1;

int x,count=0,t,i,j,n;

printf("Enter 1 to sort list 1,enter 2 to sort list 2 ");

scanf("%d",&x);

if(x==1)

{

temp=start1;

temp1=start1;

}

else

{

temp=start2;

temp1=start2;

}

while(temp!=NULL)

{

count++;

temp=temp->link;

}

n=count;

a=temp1;

b=temp1->link;

for(i=0;i<n-1;i++)

{

for(j=0;j<n-i-1;j++)

{

if(a->data>b->data)

{

t=a->data;

a->data=b->data;

b->data=t;

}

a=b;

b=b->link;

}

a=temp1;

b=temp1->link;

}

while(temp1!=NULL)

{

printf("%d\n",temp1->data);

temp1=temp1->link;

}

}

void concatenate()

{

if(start1==NULL)

{

start3=start2;

return;

}

if(start2==NULL)

{

start3=start1;

return;

}

start3=start1;

temp=start1;

while(temp->link!=NULL)

{

temp=temp->link;

}

temp->link=start2;

temp=start3;

while(temp!=NULL)

{

printf("%d\n",temp->data);

temp=temp->link;

}

}

void reverse()

{

int x;

node \*a,\*b=NULL,\*c=NULL;

printf("Enter 1 to reverse list 1,enter 2 to reverse list 2 ");

scanf("%d",&x);

if(x==1)

{

temp=start1;

}

else

{

temp=start2;

}

a=temp;

while(a!=NULL)

{

c=b;

b=a;

a=a->link;

b->link=c;

}

temp=b;

while(temp!=NULL)

{

printf("%d\n",temp->data);

temp=temp->link;

}

}

Output:

1.Createlist1

2.Createlist2

3.sort

4.search

5.concatenate

6.Reverse

7.Exit

Enter the choice:1

Enter an element2

Do you want to enter a new element (1 for yes,any other number for no)1

Enter an element5

Do you want to enter a new element (1 for yes,any other number for no)1

Enter an element1

Do you want to enter a new element (1 for yes,any other number for no)23

the elements in the list 1 are:

2

5

1

1.Createlist1

2.Createlist2

3.sort

4.search

5.concatenate

6.Reverse

7.Exit

Enter the choice:2

Enter an element9

Do you want to enter a new element (1 for yes,any other number for no)1

Enter an element3

Do you want to enter a new element (1 for yes,any other number for no)7

the elements in the list 2 are:

9

3

1.Createlist1

2.Createlist2

3.sort

4.search

5.concatenate

6.Reverse

7.Exit

Enter the choice:5

2

5

1

9

3

1.Createlist1

2.Createlist2

3.sort

4.search

5.concatenate

6.Reverse

7.Exit

Enter the choice:3

Enter 1 to sort list 1,enter 2 to sort list 2 2

3

9

1.Createlist1

2.Createlist2

3.sort

4.search

5.concatenate

6.Reverse

7.Exit

Enter the choice:4

Enter 1 to search list 1,enter 2 to search list 2 1

Enter element to be searched0

Element not found

1.Createlist1

2.Createlist2

3.sort

4.search

5.concatenate

6.Reverse

7.Exit

Enter the choice:6

Enter 1 to reverse list 1,enter 2 to reverse list 2 2

9

3

1.Createlist1

2.Createlist2

3.sort

4.search

5.concatenate

6.Reverse

7.Exit

Enter the choice: