**SORT\_REVERSE\_CONCATINATE**

#include<stdio.h>

#include<malloc.h>

struct node{

int num;

struct node \*next;

};

typedef struct node \*NODE;

NODE getNode(){

NODE temp = (NODE)malloc(sizeof(struct node));

if(temp == NULL){

return NULL;

}

return temp;

}

void freeNode(NODE temp){

free(temp);

}

NODE insertFront(NODE first){

NODE temp;

temp = getNode();

int num;

scanf("%d",&num);

temp->num = num;

temp->next = NULL;

if(first==NULL){

return temp;

}

temp->next = first;

first = temp;

return first;

}

NODE deleteFront(NODE first){

NODE temp;

if(first==NULL){

printf("List is empty\n");

return NULL;

}

if(first->next == NULL){

printf("Deleted element = %d\n",first->num);

freeNode(first);

return NULL;

}

temp = first;

temp = temp->next;

printf("Deleted elements = %d\n",first->num);

freeNode(first);

return temp;

}

NODE sort(NODE first){

NODE curr,temp;

if(first==NULL){

return NULL;

}

curr = first;

while(curr!=NULL){

temp = curr->next;

while(temp!=NULL){

if(temp->num<curr->num){

int num = curr->num;

curr->num=temp->num;

temp->num = num;

}

temp = temp->next;

}

curr = curr->next;

}

return first;

}

void display(NODE first){

NODE curr;

if(first==NULL){

printf("List is empty\n");

return;

}

curr = first;

while(curr!=NULL){

printf("%d ",curr->num);

curr=curr->next;

}

printf("\n");

}

NODE reverse(NODE first){

NODE curr=NULL;

NODE temp = getNode();

while(first!=NULL){

temp = first;

first = first->next;

temp->next = curr;

curr = temp;

//printf("%d ",first->num);

}

return temp;

}

NODE concat(NODE first){

NODE sec = NULL;

int chq;

while(1){

printf("Enter the choice:\n1-insertFront\t2-deleteFront\t3-display\t4-concat\n");

scanf("%d",&chq);

if(chq==4){

break;

}

switch(chq){

case 1:

sec = insertFront(sec);

break;

case 2:

sec = deleteFront(sec);

break;

case 3:

display(sec);

break;

}

}

NODE curr;

if(first==NULL){

return sec;

}

if(sec==NULL){

return first;

}

curr = first;

while(curr->next!=NULL){

curr = curr->next;

}

curr->next = sec;

return first;

}

int main(){

int chq;

NODE first = NULL;

while(1){

printf("Enter the choice:\n1-insertFront\t2-deleteFront\t3-display\t4-sort\t5-reverse\t6-concat\t7-exit\n");

scanf("%d",&chq);

switch(chq){

case 1:

first = insertFront(first);

break;

case 2:

first = deleteFront(first);

break;

case 3:

display(first);

break;

case 4:

first = sort(first);

break;

case 5:

first = reverse(first);

break;

case 6:

printf("Creating the second list for concat\n");

concat(first);

break;

case 7:

return 0;

}

}

}