/\*Write C++ program to store set of negative and positive numbers using linked list. Write

functions

a) Insert numbers

b) Delete nodes with negative numbers

c) To create two more linked lists using this list, one containing all positive numbers and other containing negative numbers

d) For two lists that are sorted; Merge these two lists into third resultant list that is

sorted\*/

**#include**<iostream>

**using** **namespace** std;

**struct** node

{

**int** data;

node \*next;

};

**class** sll

{

**public**:

node \*head, \*head1, \*head2;

**sll**()

{

head=NULL;

}

**void** **create**();

**void** **delet**(node \*);

**void** **display**(node \*);

**void** **posnegll**();

**void** **sortm**(node \*);

**void** **merge**(node \*, node \*);

};

**void** **sll::create**()

{

**char** ans;

node \*newnode,\*temp;

**do**

{

newnode=**new** node;

cout<<"enter data in newnode";

cin>>newnode->data;

newnode->next=NULL;

**if**(head==NULL)

{

newnode->next=head;

head=newnode;

temp=newnode;

}

**else**

{

temp->next=newnode;

temp=newnode;

}

cout<<"do you want to continue?(y/n)";

cin>>ans;

}**while**(ans=='y' || ans=='Y');

display(head);

}

**void** **sll::delet**(node \*hed)

{

node \*temp, \*prev, \*k;

//temp=temporary node

//k=to moveforword

//prev=to keep track of previous node

temp=hed;

k=hed;

**if**(temp==NULL)

cout<<"\n linklist is empty \n";

**else**

{

**while**(k!=NULL)

{

temp=k;

**if**(temp->data<0)

{

**if**(temp==hed)

{

hed=temp->next;

k=hed;

temp->next=NULL;

**delete**(temp);

}

**else**

{

prev->next=temp->next;

k=temp->next;

temp->next=NULL;

**delete**(temp);

}

}

**else**

{

prev=k;

k=k->next;

}

}

}

cout<<" \n link list with positive numbers only:";

display(hed);

}

**void** **sll::display**(node \*temp)

{

// node \*temp;

//temp=head;

**while**(temp!=NULL)

{

cout<<"\t"<<temp->data;

temp=temp->next;

}

}

**void** **sll::sortm**(node \*h1)

{

node \*p, \*q, \*r=NULL;

**int** a;

**for**(p=h1;p!=NULL;p=p->next)

{

**for**(q=p->next;q!=NULL;q=q->next)

{

**if**(p->data>q->data)

{

a=p->data;

p->data=q->data;

q->data=a;

}

}

**if**(r==NULL)

r=p;

}

display(r);

}

**void** **sll::merge**(node \*negl, node \*posl)

{

node \*mlist,\*newnode, \*mhead=NULL;

mhead=negl;

**while**(negl->next!=NULL)

negl=negl->next;

mlist=negl;

mlist->next=posl;

display(mhead);

}

**void** **sll:: posnegll**()

{

node \*temp,\*last1,\*last2,\*newnode;

head2=NULL, head1=NULL;

temp=head;

**while**(temp!=NULL)

{

**if**(temp->data<0)

{

newnode=**new** node;

newnode->data=temp->data;

newnode->next=NULL;

**if**(head1==NULL)

{

head1=newnode;

last1=head1;

}

**else**

{

last1->next=newnode;

last1=newnode;

}

}

**else**

{

newnode=**new** node;

newnode->data=temp->data;

newnode->next=NULL;

**if**(head2==NULL)

{

head2=newnode;

last2=head2;

}

**else**

{

last2->next=newnode;

last2=newnode;

}

}

temp=temp->next;

}

cout<<"\n link list of negative data:";

display(head1);

cout<<"\n link list of positive data:";

display(head2);

}

**int** **main**()

{

**int** ch;

sll l;

**do**

{

cout<<"\n 1. create \n 2. two ll for negative and positive number \n 3. sort and merge \n 4. delete negative numbers \n5. exit";

cout<<"\n Enter your choice";

cin>>ch;

**switch**(ch)

{

**case** 1: l.create();

**break**;

**case** 2: l.posnegll();

**break**;

**case** 3:

cout<<"\n sorting of negitive numbers \n";

l.sortm(l.head1);

cout<<"\n sorting of positive numbers \n";

l.sortm(l.head2);

cout<<"\n merging of two sorted list:";

l.merge(l.head1,l.head2);

**break**;

**case** 4: l.delet(l.head);

**break**;

**case** 5:

**return** 0;

}

}**while**(ch<=5);

**return** 0;

}

/\*1. create

2. two ll for negative and positive number

3. sort and merge

4. delete negative numbers

5. exit

Enter your choice1

enter data in newnode-10

do you want to continue?(y/n)y

enter data in newnode20

do you want to continue?(y/n)y

enter data in newnode30

do you want to continue?(y/n)y

enter data in newnode-40

do you want to continue?(y/n)y

enter data in newnode-50

do you want to continue?(y/n)n

-10 20 30 -40 -50

1. create

2. two ll for negative and positive number

3. sort and merge

4. delete negative numbers

5. exit

Enter your choice2

link list of negative data: -10 -40 -50

link list of positive data: 20 30

1. create

2. two ll for negative and positive number

3. sort and merge

4. delete negative numbers

5. exit

Enter your choice3

sorting of negitive numbers

-50 -40 -10

sorting of positive numbers

20 30

merging of two sorted list: -50 -40 -10 20 30

1. create

2. two ll for negative and positive number

3. sort and merge

4. delete negative numbers

5. exit

Enter your choice4

link list with positive numbers only: 20 30

1. create

2. two ll for negative and positive number

3. sort and merge

4. delete negative numbers

5. exit

Enter your choice5

\*

\*/