**PROGRAM:**

#include<iostream>

using namespace std;

class Node

{

public:

int data;

Node \*next,\*temp,\*New,\*head,\*curr,\*prev,\*var;

};

class Positive

{

public :

int pos;

Positive \*Next,\*Head,\*temp1,\*new1,\*curr1;

};

class Negative

{

public :

int neg;

Negative \*Next1,\*Head1,\*temp2,\*new2,\*curr2;

};

class link:public Node,public Positive,public Negative

{

public:

void create()

{

//Node node;

head=temp=NULL;

char choice;

int flag=1;

do

{

New=new Node;

New->next=NULL;

cout<<"\nenter the data:\n";

cin>>New->data;

if(flag==1)

{

head=New;

temp=head;

flag=0;

}

else

{

temp->next=New;

temp=New;

}

cout<<"\ndo you want to add a new member?(y/N)\n";

cin>>choice;

}

while(choice=='Y' ||choice=='y');

}

void display()

{

temp=head;

while(temp!=NULL)

{

cout<<temp->data<<endl;

temp=temp->next;

}

}

void delete\_negative()

{

temp=head;

if(head->data<0)

{

if(head->next==NULL)

{

cout<<"\nthere is only one node in list which is being deleted...\nnow list is empty\n\n";

}

temp=head;

head=head->next;

delete temp;

}

var=head;

while(var!=NULL)

{

temp=head;

prev=head;

while(temp!=NULL)

{

if(temp->data<0)

break;

prev=temp;

temp=temp->next;

}

if(temp==NULL)

{

cout<<"\nlist empty!!\n";

break;

}

else

{

if(temp==head)

head=temp->next;

else

prev->next=temp->next;

delete temp;

}

var=var->next;

}

}

public:

void New\_listp()

{

temp=head;

temp1=Head=NULL;

int flag=1;

while(temp!=NULL)

{

if(temp->data>=0)

{

new1=new Positive;

new1->Next=NULL;

new1->pos=temp->data;

if(flag==1)

{

Head=new1;

temp1=Head;

flag=0;

}

else

{

temp1->Next=new1;

temp1=new1;

}

}

temp=temp->next;

}

}

void dispositive()

{

temp1=Head;

while(temp1!=NULL)

{

cout<<temp1->pos<<endl;

temp1=temp1->Next;

}

}

void New\_listn()

{

temp=head;

temp2=Head1=NULL;

int flag=1;

while(temp!=NULL)

{

if(temp->data<0)

{

new2=new Negative;

new2->Next1=NULL;

new2->neg=temp->data;

if(flag==1)

{

Head1=new2;

temp2=Head1;

flag=0;

}

else

{

temp2->Next1=new2;

temp2=new2;

}

}

temp=temp->next;

}

}

void disnegative()

{

temp2=Head1;

while(temp2!=NULL)

{

cout<<temp2->neg<<endl;

temp2=temp2->Next1;

}

}

void sort\_positive()

{

int count=0,t;

while(temp1!=NULL)

{

count++;

temp1=temp1->Next;

}

temp1=Head;

while(temp1!=NULL)

{

curr1=Head;

while(curr1->Next!=NULL)

{

if(temp1->pos < curr1->pos)

{

t=temp1->pos;

temp1->pos=curr1->pos;

curr1->pos=t;

}

curr1=curr1->Next;

}

temp1=temp1->Next;

}

}

void sort\_negative()

{

int count=0,t;

while(temp2!=NULL)

{

count++;

temp2=temp2->Next1;

}

temp2=Head1;

while(temp2!=NULL)

{

curr2=Head1;

while(curr2->Next1!=NULL)

{

if(temp2->neg < curr2->neg)

{

t=temp2->neg;

temp2->neg=curr2->neg;

curr2->neg=t;

}

curr2=curr2->Next1;

}

temp2=temp2->Next1;

}

}

};

int main()

{

link obj;

char ans;

int n;

obj.create();

cout<<"\nyour entered list is:\n";

obj.display();

do

{

cout<<"\nenter 1 to display list after deletion of negative numbers\n";

cout<<"\nenter 2 to create only positive number list\n";

cout<<"\nenter 3 to create only negative number list\n";

cout<<"\nenter 4 to display sorted positive list\n";

cout<<"\nenter 5 to display sorted negative list\n";

cin>>n;

switch(n)

{

case 1:obj.delete\_negative();cout<<"\n list after deleting negaive elements is:\n";obj.display();break;

case 2:obj.New\_listp();cout<<"\npositive number list is:\n";obj.dispositive();break;

case 3:obj.New\_listn();cout<<"\nNegative number list is:\n";obj.disnegative();break;

case 4:obj.New\_listp();obj.sort\_positive();cout<<"\nthe sorted positive list is:\n";obj.dispositive();break;

case 5:obj.New\_listn();obj.sort\_negative();cout<<"\nthe sorted negative list is:\n";obj.disnegative();break;

default:cout<<"\ninvalid choice!!try again!!\n";

}

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

cin>>ans;

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

return 0;

}

**OUTPUT:**

enter the data:

1

do you want to add a new member?(y/N)

y

enter the data:

-2

do you want to add a new member?(y/N)

y

enter the data:

-3

do you want to add a new member?(y/N)

y

enter the data:

4

do you want to add a new member?(y/N)

y

enter the data:

5

do you want to add a new member?(y/N)

y

enter the data:

-6

do you want to add a new member?(y/N)

y

enter the data:

-7

do you want to add a new member?(y/N)

y

enter the data:

8

do you want to add a new member?(y/N)

y

enter the data:

-9

do you want to add a new member?(y/N)

y

enter the data:

-10

do you want to add a new member?(y/N)

y

enter the data:

-11

do you want to add a new member?(y/N)

n

your entered list is:

1

-2

-3

4

5

-6

-7

8

-9

-10

-11

enter 1 to display list after deletion of negative numbers

enter 2 to create only positive number list

enter 3 to create only negative number list

enter 4 to display sorted positive list

enter 5 to display sorted negative list

2

positive number list is:

1

4

5

8

do you want to continue ?(y/n)

y

enter 1 to display list after deletion of negative numbers

enter 2 to create only positive number list

enter 3 to create only negative number list

enter 4 to display sorted positive list

enter 5 to display sorted negative list

3

Negative number list is:

-2

-3

-6

-7

-9

-10

-11

do you want to continue ?(y/n)

y

enter 1 to display list after deletion of negative numbers

enter 2 to create only positive number list

enter 3 to create only negative number list

enter 4 to display sorted positive list

enter 5 to display sorted negative list

4

the sorted positive list is:

1

4

5

8

do you want to continue ?(y/n)

y

enter 1 to display list after deletion of negative numbers

enter 2 to create only positive number list

enter 3 to create only negative number list

enter 4 to display sorted positive list

enter 5 to display sorted negative list

5

the sorted negative list is:

-11

-10

-9

-7

-6

-3

-2

do you want to continue ?(y/n)

y

enter 1 to display list after deletion of negative numbers

enter 2 to create only positive number list

enter 3 to create only negative number list

enter 4 to display sorted positive list

enter 5 to display sorted negative list

1

list after deleting negaive elements is:

1

4

5

8

do you want to continue ?(y/n)

y

enter 1 to display list after deletion of negative numbers

enter 2 to create only positive number list

enter 3 to create only negative number list

enter 4 to display sorted positive list

enter 5 to display sorted negative list

2

positive number list is:

1

4

5

8

do you want to continue ?(y/n)

y

enter 1 to display list after deletion of negative numbers

enter 2 to create only positive number list

enter 3 to create only negative number list

enter 4 to display sorted positive list

enter 5 to display sorted negative list

3

Negative number list is:

do you want to continue ?(y/n)

y

enter 1 to display list after deletion of negative numbers

enter 2 to create only positive number list

enter 3 to create only negative number list

enter 4 to display sorted positive list

enter 5 to display sorted negative list

5

the sorted negative list is:

do you want to continue ?(y/n)

n