**ASSIGNMENT NO-7**

#include <iostream>

#include<stdlib.h>

#include<string.h>

using namespace std;

//data structure for student information i:e node

struct node

{

int prn;

char name[20];

node \*next;

};

class panclub

{

int num,cnt;

char nm[20]; //Data memebers

node \*head; //pointing 2 first node

public:

panclub()//Constructor to initialize object

{

num=cnt=0;

head=NULL;

}

node \*create();

void display(node \*);

node \*concat(node \*,node \*); //Memeber Functions with arguments

void reverse(node \*);

node\* insert\_president(node \*);

void insert\_sec(node \*);

void insert\_member(node \*);

node\* del\_president(node \*);

node\* del\_secretary(node \*);

node\* del\_member(node \*);

};

/\*

a) Add and delete the members as well as president or even secretary.

b) Compute total number of members of club

c) Display members

d) Two linked lists exists for two divisions. Concatenate two lists.

\*/

//To Create the list of Divisions.

node\* panclub::create()

{

node \*temp,\*n1;

temp=n1=NULL;

//int flag=1;

//char ans='y';

cout<<"\nHow many students data u want to insert in panclub database:

";

cin>>cnt;

do

{

n1=new node; //first of allocate the memory for all feilds of

struct.

cout<<"\nEnter the prn number of student:";

cin>>num;

n1->prn=num;

//storing the prn in node feild prn;

cout<<"\nEnter the name of student:";

cin>>nm;

strcpy(n1->name,nm);

//Storing the name in node feild name.;

n1->next=NULL; //making the next feild null.

if(head==NULL) //check for head is empty.

{

head=n1; //make new node as head

temp=head;

}

else

{

temp=head;

while(temp->next!=NULL) //attach at the end of list

{

temp=temp->next;

}

temp->next=n1;

}

cnt--;

}while(cnt>0);

return head;

}

void panclub::display(node \*head) //display the list of both divisions.

{

node \*temp;

temp=head;

while(temp!=NULL)

{

if(temp->next==NULL)

{

cout<<"["<<temp->prn<<"|"<<temp->name<<"]->NULL";

}

else

{

cout<<"["<<temp->prn<<"|"<<temp->name<<"]->";

}

temp=temp->next;

}

}

node\* panclub::concat(node \*head1,node \*head2) //To concatinate both the

divisions data in one list.

{

node \*head3,\*temp,\*temp1;

head3=temp=temp1=NULL;

temp=head1;

head3=head1;

while(temp->next!=NULL)

{

temp=temp->next;

}

temp1=head2;

temp->next=temp1;

return head3;

}

void panclub::reverse(node \*head)

{

node \*temp;

temp=head;

if(temp==NULL)

return;

reverse(temp->next);

cout<<"["<<temp->prn<<"|"<<temp->name<<"]->";

}

node\* panclub::insert\_president(node \*head)

{

node \*temp,\*n2;

temp=n2=NULL;

temp=head;

n2=new node;

cout<<"\nEnter the PRN number of President: ";

cin>>n2->prn;

cout<<"\nEnter the name of President: ";

cin>>n2->name;

n2->next=temp;

head=n2;

return head;

}

void panclub::insert\_member(node \*head)

{

node \*temp,\*n2;

int pn;

temp=head;

n2=new node;

cout<<"\nEnter the PRN number of Member: ";

cin>>n2->prn;

cout<<"\nEnter the name of Member: ";

cin>>n2->name;

n2->next=NULL;

cout<<"\nEnter the PRN number after which u want to add this member: ";

cin>>pn;

while(temp!=NULL)

{

if(temp->prn==pn)

{

n2->next=temp->next;

temp->next=n2;

break;

}

temp=temp->next;

}

cout<<"\n\nMember added sucessfully....!!";

}

void panclub::insert\_sec(node \*head)

{

node \*temp,\*n2;

temp=head;

n2=new node;

cout<<"\nEnter the PRN number of Secretary: ";

cin>>n2->prn;

cout<<"\nEnter the Name of Secretary: ";

cin>>n2->name;

n2->next=NULL;

while(temp->next!=NULL)

{

temp=temp->next;

}

temp->next=n2;

}

//delete the president node from list

node\* panclub::del\_president(node \*head)

{

node \*temp;

temp=head;

head=temp->next;

free(temp);

return head;

}

//Delete the secretary node from the list.

node\* panclub::del\_secretary(node \*head)

{

node \*temp,\*t1;

temp=head;

while(temp->next!=NULL)

{

t1=temp;

temp=temp->next;

}

t1->next=NULL;

free(temp);

return head;

}

//Delete the memeber from the list.

node\* panclub::del\_member(node \*head)

{

node \*temp,\*t1;

int pn;

temp=head;

cout<<"\nEnter the PRN number after which u want to delete member: ";

cin>>pn;

while(temp!=NULL)

{

if(temp->prn==pn)

{

t1=temp->next;

temp->next=t1->next;

free(t1);

break;

}

temp=temp->next;

}

cout<<"\n\nMember removed sucessfully....!!";

return head;

}

int main()

{

panclub p1,p2,p3;

node \*h1,\*h2,\*h3;

h1=h2=h3=NULL;

int ch;

cout << "\n\t!!!Group B:Assignment No:01!!!" << endl; // prints

!!!Assignment number and group!!!

do

{

cout<<"\n\n1.Enter data of SE A Division:";

cout<<"\n2.Enter data of SE B Division:";

cout<<"\n3.Concatination of List..";

cout<<"\nEnter your choice: ";

cin>>ch;

switch(ch)

{

case 1:

cout<<"\n\nPlease enter the student info who is register

memeber..";

cout<<"\n\nEnter the Panclub Data of SE A Division:\n";

h1=p1.create();

cout<<"\nSE Comp Division A List are as follows..\n\n";

p1.display(h1);

cout<<"\n\nReverse List of SE Div A:\n\n";

p1.reverse(h1);

p1.insert\_sec(h1);

cout<<"\nAfter insertion of Secretary: \n";

p1.display(h1);

h1=p1.insert\_president(h1);

cout<<"\nAfter insertion of President: \n";

p1.display(h1);

p1.insert\_member(h1);

cout<<"\n After insertion of member...\n";

p1.display(h1);

h1=p1.del\_president(h1);

cout<<"\n\nAfter deletion of president...\n";

p1.display(h1);

h1=p1.del\_secretary(h1);

cout<<"\n\nAfter deletion of secretary...\n";

p1.display(h1);

h1=p1.del\_member(h1);

cout<<"\n\nAfter deletion of member...\n";

p1.display(h1);

break;

case 2:

cout<<"\n\nEnter the Panclub Data of SE B Division:\n";

h2=p2.create();

cout<<"\nSE Comp Division B List are as follows..\n\n";

p2.display(h2);

cout<<"\n\nReverse List of SE Div B:\n\n";

p1.reverse(h2);

p2.insert\_sec(h2);

cout<<"\nAfter insertion of Secretary: \n";

p2.display(h2);

h2=p2.insert\_president(h2);

cout<<"\nAfter insertion of President: \n";

p2.display(h2);

p2.insert\_member(h2);

cout<<"\n After insertion of member...\n";

p2.display(h2);

h2=p2.del\_president(h2);

cout<<"\n\nAfter deletion of president...\n";

p1.display(h2);

h2=p2.del\_secretary(h2);

cout<<"\n\nAfter deletion of secretary...\n";

p1.display(h2);

h2=p2.del\_member(h2);

cout<<"\n\nAfter deletion of member...\n";

p2.display(h2);

break;

case 3:

h3=p3.concat(h1,h2);

cout<<"\n\nThe concatenation of Div : A and Div : B of SE Comp

Class are as follows.\n\n";

p3.display(h3);

break;

}

}while(ch!=4);

return 0;

}

**OUTPUT**

Group B:Assignment No:01

1.Enter data of SE A Division:

2.Enter data of SE B Division:

3.Concatination of List..

Enter your choice: 1

Please enter the student info who is register memeber..

Enter the Panclub Data of SE A Division:

How many students data u want to insert in panclub database: 4

Enter the prn number of student:123456

Enter the name of student:mangesh

Enter the prn number of student:234567

Enter the name of student:aman

Enter the prn number of student:34567

Enter the name of student:ram

Enter the prn number of student:45678

Enter the name of student:shyam

SE Comp Division A List are as follows..

[123456|mangesh]->[234567|aman]->[34567|ram]->[45678|shyam]->NULL

Reverse List of SE Div A:

[45678|shyam]->[34567|ram]->[234567|aman]->[123456|mangesh]->

Enter the PRN number of Secretary: 34567

Enter the Name of Secretary: ram

After insertion of Secretary:

[123456|mangesh]->[234567|aman]->[34567|ram]->[45678|shyam]->[34567|ram]->NULL

Enter the PRN number of President: 7654321

Enter the name of President: rajesh

After insertion of President:

[7654321|rajesh]->[123456|mangesh]->[234567|aman]->[34567|ram]->[45678|shyam]->[34567|ram]->NULL

Enter the PRN number of Member: 456123

Enter the name of Member: prachi

Enter the PRN number after which u want to add this member: 234567

Member added sucessfully....!!

After insertion of member...

[7654321|rajesh]->[123456|mangesh]->[234567|aman]->[456123|prachi]->[34567|ram]->[45678|shyam]->[34567|ram]->NULL

After deletion of president...

[123456|mangesh]->[234567|aman]->[456123|prachi]->[34567|ram]->[45678|shyam]->[34567|ram]->NULL

After deletion of secretary...

[123456|mangesh]->[234567|aman]->[456123|prachi]->[34567|ram]->[45678|shyam]->NULL

Enter the PRN number after which u want to delete member: 456123

Member removed sucessfully....!!

After deletion of member...

[123456|mangesh]->[234567|aman]->[456123|prachi]->[45678|shyam]->NULL

1.Enter data of SE A Division:

2.Enter data of SE B Division:

3.Concatination of List..

Enter your choice: 2

Enter the Panclub Data of SE B Division:

How many students data u want to insert in panclub database: 4

Enter the prn number of student:567890

Enter the name of student:Praharsha

Enter the prn number of student:567891

Enter the name of student:priyanka

Enter the prn number of student:567892

Enter the name of student:sam

Enter the prn number of student:567893

Enter the name of student:mangu

SE Comp Division B List are as follows..

[567890|Praharsha]->[567891|priyanka]->[567892|sam]->[567893|mangu]->NULL

Reverse List of SE Div B:

[567893|mangu]->[567892|sam]->[567891|priyanka]->[567890|Praharsha]->

Enter the PRN number of Secretary: 678910

Enter the Name of Secretary: yaha

After insertion of Secretary:

[567890|Praharsha]->[567891|priyanka]->[567892|sam]->[567893|mangu]->[678910|yaha]->NULL

Enter the PRN number of President: 898970

Enter the name of President: dashna

After insertion of President:

[898970|dashna]->[567890|Praharsha]->[567891|priyanka]->[567892|sam]->[567893|mangu]->[678910|yaha]->NULL

Enter the PRN number of Member: 454567

Enter the name of Member: madhuri

Enter the PRN number after which u want to add this member: 567890

Member added sucessfully....!!

After insertion of member...

[898970|dashna]->[567890|Praharsha]->[454567|madhuri]->[567891|priyanka]->[567892|sam]->[567893|mangu]->[678910|yaha]->NULL

After deletion of president...

[567890|Praharsha]->[454567|madhuri]->[567891|priyanka]->[567892|sam]->[567893|mangu]->[678910|yaha]->NULL

After deletion of secretary...

[567890|Praharsha]->[454567|madhuri]->[567891|priyanka]->[567892|sam]->[567893|mangu]->NULL

Enter the PRN number after which u want to delete member: 454567

Member removed sucessfully....!!

After deletion of member...

[567890|Praharsha]->[454567|madhuri]->[567892|sam]->[567893|mangu]->NULL

1.Enter data of SE A Division:

2.Enter data of SE B Division:

3.Concatination of List..

Enter your choice: 3

The concatenation of Div : A and Div : B of SE Comp Class are as follows.

[123456|mangesh]->[234567|aman]->[456123|prachi]->[45678|shyam]->[567890|Praharsha]->[454567|madhuri]->[567892|sam]->[567893|mangu]->NULL

**ASSIGNMENT NO-08**

#include<iostream>

using namespace std;

struct SLLNode\* createSLL(int cnt, struct SLLNode \*head);

void displaySLL(struct SLLNode \*head);

void A\_U\_B();

void A\_int\_B();

void A\_Min\_B();

void B\_Min\_A();

void U\_Min\_A\_U\_B();

struct SLLNode

{

char data;

struct SLLNode \*next;

}\*headU, \*headA, \*headB;

int main()

{

int i,no;

cout<<"\n\n\t How many Linked Lists: ";

cin>>no;

headU = headA = headB = NULL;

for(i=1; i<=no; i++)

{

if(i == 1)

{

cout<<"\n\n\t Enter 10 Students of SE Comp : ";

headU = createSLL(10, headU);

cout<<"\n";

displaySLL(headU);

}

if(i == 2)

{

cout<<"\n\n\t Enter 5 Students who like Vanilla Icecreme: ";

headA = createSLL(5, headA);

cout<<"\n";

displaySLL(headA);

}

if(i == 3)

{

cout<<"\n\n\t Enter 5 Students who like Butterscotch Icecreme: ";

headB = createSLL(5, headB);

cout<<"\n";

displaySLL(headB);

}

}

cout<<"\n\n Input Sets:------------------------";

cout<<"\n\n Set 'U': ";

displaySLL(headU);

cout<<"\n\n Set 'A': ";

displaySLL(headA);

cout<<"\n\n Set 'B': ";

displaySLL(headB);

cout<<"\n\n Output Sets:------------------------";

A\_U\_B();

A\_int\_B();

A\_Min\_B();

B\_Min\_A();

U\_Min\_A\_U\_B();

cout<<"\n\n";

return 0;

}

struct SLLNode\* createSLL(int cnt, struct SLLNode \*head)

{

int i;

struct SLLNode \*p, \*newNode;

for(i=0; i<cnt; i++)

{

newNode = new(struct SLLNode);

cout<<"\n\t Enter Student Initial: ";

cin>>newNode->data;

newNode->next = NULL;

if(head == NULL)

{

head = newNode;

p = head;

}

else

{

p->next = newNode;

p = p->next;

}

}

return head;

}

void displaySLL(struct SLLNode \*head)

{

struct SLLNode \*p;

p = head;

while(p != NULL)

{

cout<<" "<<p->data;

p = p->next;

}

}

void A\_U\_B()

{

int i,j;

char a[10];

struct SLLNode \*p, \*q;

i = 0; //Index of Resultant Array

p = headA; //pointer to Set 'A'

q = headB; //pointer to Set 'B'

while(p != NULL && q != NULL)

{

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

{

a[i] = p->data;

i++;

p = p->next;

q = q->next;

}

else

{

a[i] = p->data;

i++;

p = p->next;

}

}

if(p == NULL)

{

while(q != NULL)

{

a[i] = q->data;

i++;

q = q->next;

}

}

if(q == NULL)

{

while(p != NULL)

{

a[i] = p->data;

i++;

p = p->next;

}

}

cout<<"\n\n\t Set A U B: ";

for(j=0; j < i; j++)

cout<<" "<<a[j];

}

void A\_int\_B()

{

int i,j;

char a[10];

struct SLLNode \*p, \*q;

i = 0;

p = headA;

while(p != NULL)

{

q = headB;

while(q != NULL)

{

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

{

a[i] = p->data;

i++;

}

q = q->next;

}

p = p->next;

}

cout<<"\n\n\t Set A ^ B: ";

for(j=0; j < i; j++)

cout<<" "<<a[j];

}

void A\_Min\_B()

{

int i,j,flag;

char a[10];

struct SLLNode \*p, \*q;

i = 0;

p = headA;

while(p != NULL)

{

flag = 0;

q = headB; //pointer to Set 'B'

while(q != NULL)

{

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

{

flag = 1;

}

q = q->next;

}

if(flag == 0)

{

a[i] = p->data;

i++;

}

p = p->next;

}

cout<<"\n\n\t Set A - B: ";

for(j=0; j < i; j++)

cout<<" "<<a[j];

}

void B\_Min\_A()

{

int i,j,flag;

char a[10];

struct SLLNode \*p, \*q;

i = 0;

q = headB;

while(q != NULL)

{

flag = 0;

p = headA;

while(p != NULL)

{

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

{

flag = 1;

}

p = p->next;

}

if(flag == 0)

{

a[i] = q->data;

i++;

}

q = q->next;

}

cout<<"\n\n\t Set B - A: ";

for(j=0; j < i; j++)

cout<<" "<<a[j];

}

void U\_Min\_A\_U\_B()

{

int i,j,flag;

char a[10];

struct SLLNode \*p, \*q, \*r;

i = 0;

p = headU;

while(p != NULL)

{

flag = 0;

q = headA; //pointer to Set 'A'

r = headB; //pointer to Set 'B'

while(q != NULL)

{

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

{

flag = 1;

}

q = q->next;

}

while(r != NULL)

{

if(p->data == r->data)

{

flag = 1;

}

r = r->next;

}

if(flag == 0)

{

a[i] = p->data;

i++;

}

p = p->next;

}

cout<<"\n\n\t Set U - (A U B): ";

for(j=0; j < i; j++)

cout<<" "<<a[j];

}

OUTPUT

How many Linked Lists: 10

Enter 10 Students of SE Comp :

Enter Student Initial: a

Enter Student Initial: s

Enter Student Initial: d

Enter Student Initial: f

Enter Student Initial: g

Enter Student Initial: h

Enter Student Initial: j

Enter Student Initial: k

Enter Student Initial: l

Enter Student Initial: z

a s d f g h j k l z

Enter 5 Students who like Vanilla Icecreme:

Enter Student Initial: s

Enter Student Initial: d

Enter Student Initial: g

Enter Student Initial: h

Enter Student Initial: j

s d g h j

Enter 5 Students who like Butterscotch Icecreme:

Enter Student Initial: z

Enter Student Initial: l

Enter Student Initial: k

Enter Student Initial: j

Enter Student Initial: a

z l k j a

Input Sets:------------------------

Set 'U': a s d f g h j k l z

Set 'A': s d g h j

Set 'B': z l k j a

Output Sets:------------------------

Set A U B: s d g h j z l k j a

Set A ^ B: j

Set A - B: s d g h

Set B - A: z l k a

Set U - (A U B): f

**ASSIGNMENT N0-9**

#include<iostream>

#include<string.h>

#define max 50

using namespace std;

class STACK

{

private:

char a[max];

int top;

public:

STACK()

{

top=-1;

}

void push(char);

void reverse();

void convert(char[]);

void palindrome();

};

void STACK::push(char c)

{

top++;

a[top] = c;

a[top+1]='\0';

cout<<endl<<c<<" is pushed on stack ...";

}

void STACK::reverse()

{

char str[max];

cout<<"\n\nReverse string is : ";

for(int i=top,j=0; i>=0; i--,j++)

{

cout<<a[i];

str[j]=a[i];

}

cout<<endl;

}

void STACK::convert(char str[])

{

int j,k,len = strlen(str);

for(j=0, k=0; j<len; j++)

{

if( ( (int)str[j] >= 97 && (int)str[j] <=122 ) || ( (int)str[j] >= 65 && (int)str[j] <=90 ))

{

if( (int)str[j] <=90 )

{

str[k] = (char)( (int)str[j] + 32 );

}else

{

str[k] = str[j];

}

k++;

}

}

str[k]='\0';

cout<<endl<<"Converted String : "<<str<<"\n";

}

void STACK::palindrome()

{

char str[max];

int i,j;

for(i=top,j=0; i>=0; i--,j++)

{

str[j]=a[i];

}

str[j]='\0';

if(strcmp(str,a) == 0)

cout<<"\n\nString is palindrome...";

else

cout<<"\n\nString is not palindrome...";

}

int main()

{

STACK stack;

char str[max];

int i=0;

cout<<"\nEnter string to be reversed and check is it palindrome or not : \n\n";

cin.getline(str , 50);

stack.convert(str);

while(str[i] != '\0')

{

stack.push(str[i]);

i++;

}

stack.palindrome();

stack.reverse();

}

OUTPUT

Enter string to be reversed and check is it palindrome or not :

MANGESH

Converted String : mangesh

m is pushed on stack ...

a is pushed on stack ...

n is pushed on stack ...

g is pushed on stack ...

e is pushed on stack ...

s is pushed on stack ...

h is pushed on stack ...

String is not palindrome...

Reverse string is : hsegnaM

Enter string to be reversed and check is it palindrome or not :

MALAYALAM

Converted String : malayalam

m is pushed on stack ...

a is pushed on stack ...

l is pushed on stack ...

a is pushed on stack ...

y is pushed on stack ...

a is pushed on stack ...

l is pushed on stack ...

a is pushed on stack ...

m is pushed on stack ...

String is palindrome...

Reverse string is : malayalam