/\* Wap in C++ to **create a linked list of integers** and perform some basic operation on it. \*/

#include<iostream.h>

#include<process.h>

#include<conio.h>

struct node {

int info;

node\*next;

}\*rear,\*start,\*newptr,\*save,\*ptr;

void delnode()

{

if(start==NULL)

cout<<"underflow!!";

else

{

ptr=start;

start=start->next;

delete ptr;

cout<<"\n\nFirst node deleted";

}

}

void insert\_beg(node\*np)

{

if(start==NULL)

start=np;

else

{

save=start;

start=np;

np->next=save;

}

}

void display(node\*np)

{

while(np!=NULL)

{

cout<<np->info<<"->";

np=np->next;

}

cout<<"\n";

}

node\*create\_new\_node(int n)

{

ptr=new node;

ptr->info=n;

ptr->next=NULL;

return ptr;

}

void insert\_end(node\*np)

{

if(start==NULL)

start=rear=np;

else

{

rear->next=np;

rear=np;

}

}

void search(node\*np,int a)

{

int flag=0;

while(np!=NULL)

{

if(np->info==a)

{

flag=1;

break;

}

else

np=np->next;

}

if(flag)

cout<<a<<"\n\nFound";

else

cout<<"\n\nNot found";

}

void main()

{

clrscr();

start=rear=NULL;

char ans='y',choice;

int ch,info,n;

do

{

cout<<"\n\nChoose from the menu :\n1.Insert at the end\n2.Insert at beginning\n3.Searching\n4.Deletion from begining \n5.Display \n";

cout<<"\n\nEnter your choice";

cin>>ch;

switch(ch)

{

case 1: do

{

cout<<"\n\nEnter information for the new node : ";

cin>>info;

newptr=create\_new\_node(info);

if(newptr!=NULL)

cout<<"\n\nNode has been created";

else

{

cout<<"\n\nNode cannot be created;";

exit(1);

}

insert\_end(newptr);

cout<<"\n\nThe Linked list is : ";

display(start);

cout<<"\n\nWant to insert again : ";

cin>>choice;

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

break;

case 2: do

{

cout<<"\n\nEnter info for new node: ";

cin>>info;

newptr=create\_new\_node(info);

if(newptr!=NULL)

cout<<"\n\nNode has been created ";

else

{

cout<<"\n\nNode cannot be created ";

exit(1);

}

insert\_beg(newptr);

cout<<"\n\nThe Linked list is : ";

display(start);

cout<<"\n\nWant to insert again : ";

cin>>choice;

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

break;

case 3: do

{

cout<<"\n\nEnter info to be searched : ";

cin>>n;

search(start,n);

cout<<"\n\nWant to search again : ";

cin>>choice;

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

break;

case 4: delnode();

break;

case 5: display(start);

break;

}// end of do switch

cout<<"\n\nWant to choose again : ";

cin>>ans;

}

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

getch();

}

Output :

Choose from the menu :

1.Insert at the end

2.Insert at beginning

3.Searching

4.Deletion from begining

5.Display

Enter your choice : 1

Enter information for the new node : 1

Node has been created

The Linked list is : 1->

Want to insert again : y

Enter information for the new node : 2

Node has been created

The Linked list is : 1->2->

Want to insert again : n

Want to choose again : y

Choose from the menu :

1.Insert at the end

2.Insert at beginning

3.Searching

4.Deletion from begining

5.Display

Enter your choice : 2

Enter info for new node: 10

Node has been created

The Linked list is : 10->1->2->

Want to insert again : n

Want to choose again : y

Choose from the menu :

1.Insert at the end

2.Insert at beginning

3.Searching

4.Deletion from begining

5.Display

Enter your choice : 3

Enter info to be searched : 2

Found

Want to search again : N

Want to choose again : y

Choose from the menu :

1.Insert at the end

2.Insert at beginning

3.Searching

4.Deletion from begining

5.Display

Enter your choice : 4

First node deleted

Want to choose again : y

Choose from the menu :

1.Insert at the end

2.Insert at beginning

3.Searching

4.Deletion from begining

5.Display

Enter your choice : 5

1->2->

Want to choose again : N