



LINKLIST

ALL OPERATIONS

- 1-create nodes
- 2-insertion in linklist
- 3-deletion in linklist
- 4-search and modify data
- 5-sort data of the linklist

By DJVprogrammers

LINKLIST IN CPP

1-Create nodes in the linklist

Code

```
#include<iostream>
```

```
#include<conio.h>
```

```
using namespace std;
```

```
struct linklist
```

```
{
```

```
    //parts of a node.
```

```
    int data;
```

```
    linklist*link;
```

```
    linklist()
```

```
    {
```

```
        link=NULL;
```

```
    }
```

```
};
```

```
class nodes
```

```
{
```

```
    //pointers to handle the linklist
```

```
    linklist *start,*cur,*temp;
```

```
    public:
```

```
nodes()

{

    start=NULL;

}

//function to create nodes

creat_node (int n)

{

    //create 1st node...

    if(start==NULL)

    {

        start=new linklist;

        start->link=NULL;

        start->data=n;

    }

    //to create new node..

    else

    {

        cur=start;

        while(cur->link!=NULL)

        {
```

```
        cur=cur->link;

    }

    temp=new linklist;

    temp->data=n;

    temp->link=NULL;

    cur->link=temp;

}

}

//print data of the linklist.

void print()

{

    cout<<"_____ "<<endl;

    cout<<"_____ ENTERED DATA IS _____ "<<endl;

    cur=start;

    int c;

    for(c=1;cur->link!=NULL;c++)

    {

        cout<<"Data "<<c<<" ---> "<<cur->data<<endl;

        cur=cur->link;

    }

    cout<<"Data "<<c<<" ---> "<<cur->data<<endl;
```

```
    }

};

int main()

{

    nodes l1;

    int noofnodes,i,n;

    cout<<"_____ "<<endl;

    cout<<"_____CREATE NODES IN LINKLIST_____"<<endl;

    cout<<"_____ "<<endl;

    //no. of nodes.

    cout<<"how many Nodes you want to create"<<endl;

    cin>>noofnodes;

    //create nodes....function call pass data..

    for(i=1;i<=noofnodes;i++)

    {

        cout<<"Enter data\t";

        cin>>n;

        l1.creat_node(n);

    }

    l1.print();

}
```

```
    getch();  
}
```

Output

```
CREATE NODES IN LINKLIST  
how many Nodes you want to create  
5  
Enter data      1  
Enter data      3  
Enter data      5  
Enter data      7  
Enter data      8  
  
ENTERED DATA IS  
Data 1 ---> 1  
Data 2 ---> 3  
Data 3 ---> 5  
Data 4 ---> 7  
Data 5 ---> 8
```

2-Insert data in linklist

Code

```
#include<iostream>

using namespace std;

struct linklist
{
    //parts of a node.

    int data;

    linklist*link;

    linklist()
    {
        link=NULL;
    }
};

class nodes
{
    //pointer to perform functions on linklist

    linklist *start,*cur,*temp;

    public:

    nodes()
    {
```

```
        start=NULL;

    }

    creat_node (int n)

    {

        //create 1st node

        if(start==NULL)

        {

            start=new linklist;

            start->link=NULL;

            start->data=n;

        }

        //create new node.

        else

        {

            cur=start;

            while(cur->link!=NULL)

            {

                cur=cur->link;

            }

            temp=new linklist;

            temp->data=n;
```

```
        temp->link=NULL;

        cur->link=temp;

    }

}

void insert(int p,int d)

{

    cur=start;

    //insert data at start

    if(p==1)

    {

        temp=new linklist;

        temp->data=d;

        temp->link=start;

        start=temp;

    }

    //insert data in mid or at end

    else

    {

        for(int i=1;i<p-1;i++)

        {

            cur=cur->link;
```

```
    }

    temp=new linklist;

    temp->data=d;

    temp->link=cur->link;

    cur->link=temp;

    }

}

void print()
{

    //print data.

    cur=start;

    int c;

    cout<<"_____ "<<endl;

    cout<<"_____ DATA IN LINKLIST _____ "<<endl;

    for(c=1;cur->link!=NULL;c++)

    {

        cout<<"Data "<<c<<" ---> "<<cur->data<<endl;

        cur=cur->link;

    }

    cout<<"Data "<<c<<" ---> "<<cur->data<<endl;
```

```
        cout<<"_____ "<<endl;

    }

};

int main()

{

    nodes l1;

    int noofnodes,i,n;

    cout<<"_____ "<<endl;

    cout<<"_____ CREATE NODES IN LINKLIST _____ "<<endl;

    cout<<"_____ "<<endl;

    //no. of nodes

    cout<<"how many Nodes you want to create"<<endl;

    cin>>noofnodes;

    //enter data and function call to create node

    for(i=1;i<=noofnodes;i++)

    {

        cout<<"Enter data \t";

        cin>>n;

        l1.creat_node(n);

    }
```

```
cout<<"_____OLD DATA_____"<<endl;

l1.print();

//insert data

int p,d;

position:

cout<<"_____ "<<endl;

cout<<"_____INSERTION_____"<<endl;

cout<<"_____ "<<endl;


cout<<"enter position to insert data"<<endl;

cin>> p;

//if invalid position

if(p>noofnodes+1)

{

cout<<"\t!!!____INVALID POSITION____!!!"<<endl;

goto position;

}

//enter data

cout<<"enter data to insert"<<endl;

cin>> d;

l1.insert(p,d);
```

```
cout<<"_____UPDATED LIST WITH INSERTED DATA_____"<<endl;

l1.print();

cout<<"_____END_____"<<endl;

}
```

Output

```
_____CREATE NODES IN LINKLIST_____
how many Nodes you want to create
5
Enter data      1
Enter data      4
Enter data      7
Enter data      4
Enter data      9
_____OLD DATA_____
_____DATA IN LINKLIST_____
Data 1 ---> 1
Data 2 ---> 4
Data 3 ---> 7
Data 4 ---> 4
Data 5 ---> 9
_____
_____INSERTION_____
enter position to insert data
3
enter data to insert
55
_____UPDATED LIST WITH INSERTED DATA_____
_____DATA IN LINKLIST_____
Data 1 ---> 1
Data 2 ---> 4
Data 3 ---> 55
Data 4 ---> 7
Data 5 ---> 4
Data 6 ---> 9
_____END_____
```

3-Delete data from linked list

Code

```
#include<iostream>
```

```
using namespace std;
```

```
struct linklist
```

```
{
```

```
    int data;
```

```
    linklist*link;
```

```
    linklist()
```

```
    {
```

```
        link=NULL;
```

```
    }
```

```
};
```

```
class nodes
```

```
{
```

```
    linklist *start,*cur,*temp;
```

```
    public:
```

```
    nodes()
```

```
    {
```

```
        start=NULL;

    }

    //create nodes

    creat_node (int n)

    {

        if(start==NULL)

        {

            start=new linklist;

            start->link=NULL;

            start->data=n;

        }

        else

        {

            cur=start;

            while(cur->link!=NULL)

            {

                cur=cur->link;

            }

            temp=new linklist;

            temp->data=n;

            temp->link=NULL;
```

```
        cur->link=temp;

    }

}

void deletion(int d)
{
    cur=start;

    if(start->data==d)
    {
        temp=start;
        start=start->link;
        delete temp;
    }
    else
    {
        while(cur->data!=d)
        {
            if(cur->link==NULL)
            {
                cout<<"Data does not exist"<<endl;

                return ;
            }
        }
    }
}
```

```
        }

        temp=cur;

        cur=cur->link;

    }

    temp->link=cur->link;

    delete cur;

}

}

void print()
{

    cur=start;

    int c=1;

    cout<<"_____ "<<endl;

    cout<<"_____ DATA HAS BEEN DELETED _____ "<<endl;

    cout<<"_____ "<<endl;

    while(cur->link!=NULL)
    {

        cout<<"Data " <<c<<" ---> " <<cur->data<<endl;

        cur=cur->link;

        c++;

    }

}
```

```
        }

        cout<<"Data "<<c<<" ---> "<<cur->data<<endl;

    }

};

int main()

{

    nodes l1;

    int noofnodes,i,n;

    cout<<"_____ "<<endl;

    cout<<"_____ NO. OF NODES _____ "<<endl;

    cout<<"_____ "<<endl;

    cout<<"how many nodes you want to create"<<endl;

    cin>>noofnodes;

    cout<<"_____ CREATE NODES _____ "<<endl;

    for(i=1;i<=noofnodes;i++)

    {

        cout<<"Enter data\t";

        cin>>n;

        l1.creat_node(n);

    }
```

```
int d;

cout<<"_____ "<<endl;

cout<<"_____DELETE DATA_____"<<endl;

cout<<"_____ "<<endl;

cout<<"enter data that should be deleted"<<endl;

cin>> d;

l1.deletion(d);

l1.print();

cout<<"_____END_____"<<endl;

}
```

Output

```
_____NO. OF NODES_____
how many nodes you want to create
5
_____CREATE NODES_____
Enter data 2
Enter data 7
Enter data 8
Enter data 9
Enter data 3
_____DELETE DATA_____
enter data that should be deleted
9
_____DATA HAS BEEN DELETED_____
Data 1 ---> 2
Data 2 ---> 7
Data 3 ---> 8
Data 4 ---> 3
_____END_____
```

4-search and modify data from linked list

Code

```
#include<iostream>
```

```
using namespace std;
```

```
struct linklist
```

```
{
```

```
    int data;
```

```
    linklist*link;
```

```
    linklist()
```

```
    {
```

```
        link=NULL;
```

```
    }
```

```
};
```

```
class nodes
```

```
{
```

```
    linklist *start,*cur,*temp;
```

```
    public:
```

```
    nodes()
```

```
    {
```

```
        start=NULL;
```

```
    }
```

```
//create nodes

creat_node (int n)

{

    if(start==NULL)

    {

        start=new linklist;

        start->link=NULL;

        start->data=n;

    }

    else

    {

        cur=start;

        while(cur->link!=NULL)

        {

            cur=cur->link;

        }

        temp=new linklist;

        temp->data=n;

        temp->link=NULL;

        cur->link=temp;

    }

}
```

```
}

void searching(int s)
{
    cur=start;

    while(cur->data!=s)
    {
        if(cur->link==NULL)
        {
            cout<<"\tdata not found"<<endl;

            return ;
        }
        else
            cur=cur->link;
    }
    cout<<"\tdata found at "<<cur<<endl;
    cout<<"\t"<<cur->data<<endl;

    cout<<"\t_____MODIFY_____ "<<endl;

    cout<<"\tenter new value in place of searched value"<<endl<<"\t";

    cin>>cur->data;

}
```

```
void print()
{
    cur=start;

    int c=1;

    cout<<"t_____ "<<endl;

    cout<<"t_____DATA HAS BEEN MODIFIED_____ "<<endl;

    cout<<"t_____ "<<endl;

    while(cur->link!=NULL)
    {

        cout<<"tData "<<c<<" ---> "<<cur->data<<endl;

        cur=cur->link;

        c++;

    }

    cout<<"tData "<<c<<" ---> "<<cur->data<<endl;

}

};

int main()
{

    nodes l1;

    int noofnodes,i,n;

    cout<<"t_____ "<<endl;
```

```
cout<<"\t_____NO. OF NODES_____"<<endl;

cout<<"\t_____"<<endl;

cout<<"\thow many nodes you want to create"<<endl<<"\t";

cin>>noofnodes;

cout<<"\t_____CREATE NODES_____"<<endl;

for(i=1;i<=noofnodes;i++)
{
    cout<<"\tEnter data\t";

    cin>>n;

    l1.creat_node(n);
}

int d;

cout<<"\t_____"<<endl;

cout<<"\t_____SEARCH DATA_____"<<endl;

cout<<"\t_____"<<endl;

cout<<"\tentter value of data you want to search from list"<<endl<<"\t";

cin>> d;

l1.searching(d);

l1.print();

cout<<"\t_____END_____"<<endl;
```

}

Output

```
_____NO. OF NODES_____
how many nodes you want to create
5
_____CREATE NODES_____
Enter data      4
Enter data      7
Enter data      2
Enter data      8
Enter data      5
_____SEARCH DATA_____
enter value of data you want to search from list
2
data found at 0x21530
2
_____MODIFY_____
enter new value in place of searched value
1
_____DATA HAS BEEN MODIFIED_____
Data 1 ---> 4
Data 2 ---> 7
Data 3 ---> 1
Data 4 ---> 8
Data 5 ---> 5
_____END_____
```

5-sort data of the linklist

Code

```
#include<iostream>
```

```
#include<conio.h>
```

```
using namespace std;
```

```
struct linklist
```

```
{
```

```
    //parts of a node.
```

```
    int data;
```

```
    linklist*link;
```

```
    linklist()
```

```
    {
```

```
        link=NULL;
```

```
    }
```

```
};
```

```
class nodes
```

```
{
```

```
    //pointers to handle the linklist
```

```
    linklist *start,*cur,*temp;
```

```
    public:
```

```
nodes()

{

    start=NULL;

}

//function to create nodes

creat_node (int n)

{

    //create 1st node...

    if(start==NULL)

    {

        start=new linklist;

        start->link=NULL;

        start->data=n;

    }

    //to create new node..

    else

    {

        cur=start;

        while(cur->link!=NULL)

        {

            cur=cur->link;
```

```
        }

        temp=new linklist;

        temp->data=n;

        temp->link=NULL;

        cur->link=temp;

    }

}

//sorting data

sorting()

{

    cur=temp=start;

    linklist*add;

    int t;

    while(cur->link!=NULL)//outer loop

    {

        temp=cur;

        while(temp->link!=NULL)//inner loop

        {

            if(cur->data>=temp->data)

            {

                t=cur->data;
```

```
        cur->data=temp->data;

        temp->data=t;

    }
```

```
        temp=temp->link;

    }

    //used this if to compare data of last node
```

```
        if(cur->data>=temp->data)

    {

        t=cur->data;

        cur->data=temp->data;

        temp->data=t;

    }
```

```
        cur=cur->link;
```

```
    }
```

```
}
```

```
//print data of the linklist.
```

```
void print()
```

```
{
```

```
cout<<"_____ "<<endl;

cout<<"_____SORTED DATA IS _____ "<<endl;

cur=start;

int c;

for(c=1;cur->link!=NULL;c++)

{

    cout<<"Data "<<c<<" ---> "<<cur->data<<endl;

    cur=cur->link;

}

cout<<"Data "<<c<<" ---> "<<cur->data<<endl;

}

};

int main()

{

    nodes l1;

    int noofnodes,i,n;

    cout<<"_____ "<<endl;

    cout<<"_____CREATE NODES IN LINKLIST _____ "<<endl;

    cout<<"_____ "<<endl;

    //no. of nodes.

    cout<<"how many Nodes you want to create"<<endl;
```

```
cin>>noofnodes;

//create nodes....function call pass data..

for(i=1;i<=noofnodes;i++)

{

    cout<<"Enter data\t";

    cin>>n;

    l1.creat_node(n);

}

l1.sorting();

l1.print();

getch();

}
```

Output

```
CREATE NODES IN LINKLIST
how many Nodes you want to create
5
Enter data      3
Enter data      7
Enter data      9
Enter data      2
Enter data      0

SORTED DATA IS
Data 1 ---> 0
Data 2 ---> 2
Data 3 ---> 3
Data 4 ---> 7
Data 5 ---> 9
```

[Program.codes.cpp@gmail.com.](mailto:Program.codes.cpp@gmail.com)

<https://programcodescpp.wixsite.com/programcodes>

Website:

<https://programcodescpp.wixsite.com/programcodes>

Email

Program.codes.cpp@gmail.com

Facebook Page

<https://web.facebook.com/DJVprogrammers>