

SOURCE CODE

```
#include<iostream>
using namespace std;
class node{
public:
    int data;
    node* next;
    node(int val){
        data=val;
        next=NULL;
    }
};

void insertAtHead(node* &head,int val){
    node* temp=head;
    node* n=new node(val);
    if(temp==NULL){
        head=n;
    }
    n->next=temp;
    head=n;
}

void insertAtTail(node* &head,int val){
    node* n=new node(val);
    node* temp=head;
    if(temp==NULL){
        insertAtHead(head,val);
        return;
    }
    while(temp->next!=NULL){
        temp=temp->next;
    }
    temp->next=n;
}

int searchNode(node* head,int val){    //unsorted
    int i=0;
    while(head!=NULL){
        if(head->data==val){
            return i+1;
        }
        i++;
        head=head->next;
    }
    return -1;
}

int searchNode1(node* head,int val){    //sorted
    int i=0;
    while(head!=NULL){
        if(head->data<val){
```

```

        return -1;
    }
    if(head->data==val){
        return i+1;
    }
    i++;
    head=head->next;
}
return -1;
}
int searchNode2(node* head,int val){    //sorted
    int i=0;
    while(head!=NULL){
        if(head->data>val){
            return -1;
        }
        if(head->data==val){
            return i+1;
        }
        i++;
        head=head->next;
    }
    return -1;
}
void display(node* head){
    node* temp=head;
    if(temp==NULL){
        return;
    }
    cout<<"List is: ";
    while(temp!=NULL){
        cout<<temp->data<<"->";
        temp=temp->next;
    }
    cout<<"NULL"<<endl;
}
int main(){
    node* head1=NULL;
    node* head2=NULL;
    insertAtHead(head1,6);
    insertAtHead(head1,7);
    insertAtHead(head1,9);
    insertAtHead(head1,8);
    display(head1);
    cout<<"(Basic search)"<<"element 9 at pos: "<<searchNode(head1,9)<<endl;
    cout<<"(Descending search)"<<"element 8 at pos: "<<searchNode1(head1,8)
<<endl;
    insertAtTail(head2,1);

```

```

insertAtTail(head2,2);
insertAtTail(head2,4);
insertAtTail(head2,5);
display(head2);
cout<<"(Basic search)"<<"element 4 at pos: "<<searchNode(head2,4)<<endl;
cout<<"(Ascending search)"<<"element 2 at pos: "<<searchNode2(head2,2)<
<endl;

```

OUTPUT

```

PS C:\Users\anil kumar\Documents\anil\.vscode\DataStructure_in_nsut> cd "c:\Users\anil k
c++17 5_linklist.cpp -o 5_linklist } ; if ($?) { .\5_linklist }
List is: 8->9->7->6->NULL
(Basic search)element 9 at pos: 2
(Descending search)element 8 at pos: 1
List is: 1->2->4->5->NULL
(Basic search)element 4 at pos: 3
(Ascending search)element 2 at pos: 2
PS C:\Users\anil kumar\Documents\anil\.vscode\DataStructure_in_nsut>

```