JAYPEE INSTITUTE OF INFORMATION TECHNOLOGY,NOIDA-62
SEMESTER-3
DSA MINI PROJECT
B15

Phonebook Management System

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OVERVIEW

The “Phonebook Management System” is a simple console application in C++. In this console application,users can add a new contact,delete an old record or update it. The Phonebook Management System undertaken as a project is based on relevant technologies.

GOALS

1. To allow users to add contacts in the phonebook.
2. To store those contacts into a file.
3. To update, delete or edit the contact in the phonebook.
4. To display the recent call history after call.
5. To provide greater speed and reduced time consumption.

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INTRODUCTION

The main aim of this project is to develop a Phonebook Management software. This software has been developed in C++ language. This will allow users to access various functions and processes available in the system. It has many features to maintain a contact list like adding a new contact,editing an existing contact,deleting a contact,storing them into a file and displaying them.It will work at a greater speed.

“Phonebook Management System” is a simple console application in C++. In this project, users can add a new phone record,delete an old record or update it. The code for this application will be optimized. We have used a doubly linked list to store the contact information in a node. Insertion, deletion or updation will be easier using a doubly linked list. The LRU(Least Frequently/Recently Used) algorithm maintains a linked list which has been called recently. LRU has been implemented using stack only. All the functions are optimized.

WORKING APPROACH:

- Creating a menu in the welcome page that will be accessed after running the program.
- There will be four options in the main menu, they are as follows:
    1. Add a contact
    2. Edit a contact
    3. Delete a contact
    4. Search a contact
    5. Display all contacts
    6. Delete all contacts
    7. History of recently called contacts

CONCEPTS USED:

- Basic C++ syntax.
- Features of Object Oriented Programming(OOPs).
- Stack.
- Doubly Linked LIsts.
- LRU algorithm.
- Searching and Sorting.
- File Handling.

SYNOPSIS

CLASS USED

“node”: This will create a node of doubly linked list which will contain two pointers which will keep records of previous and next nodes. A node will also contain four string variables.

“phoneBook”: It will contain name,phone number,email and address in a node.

Member functions of “phoneBook”:

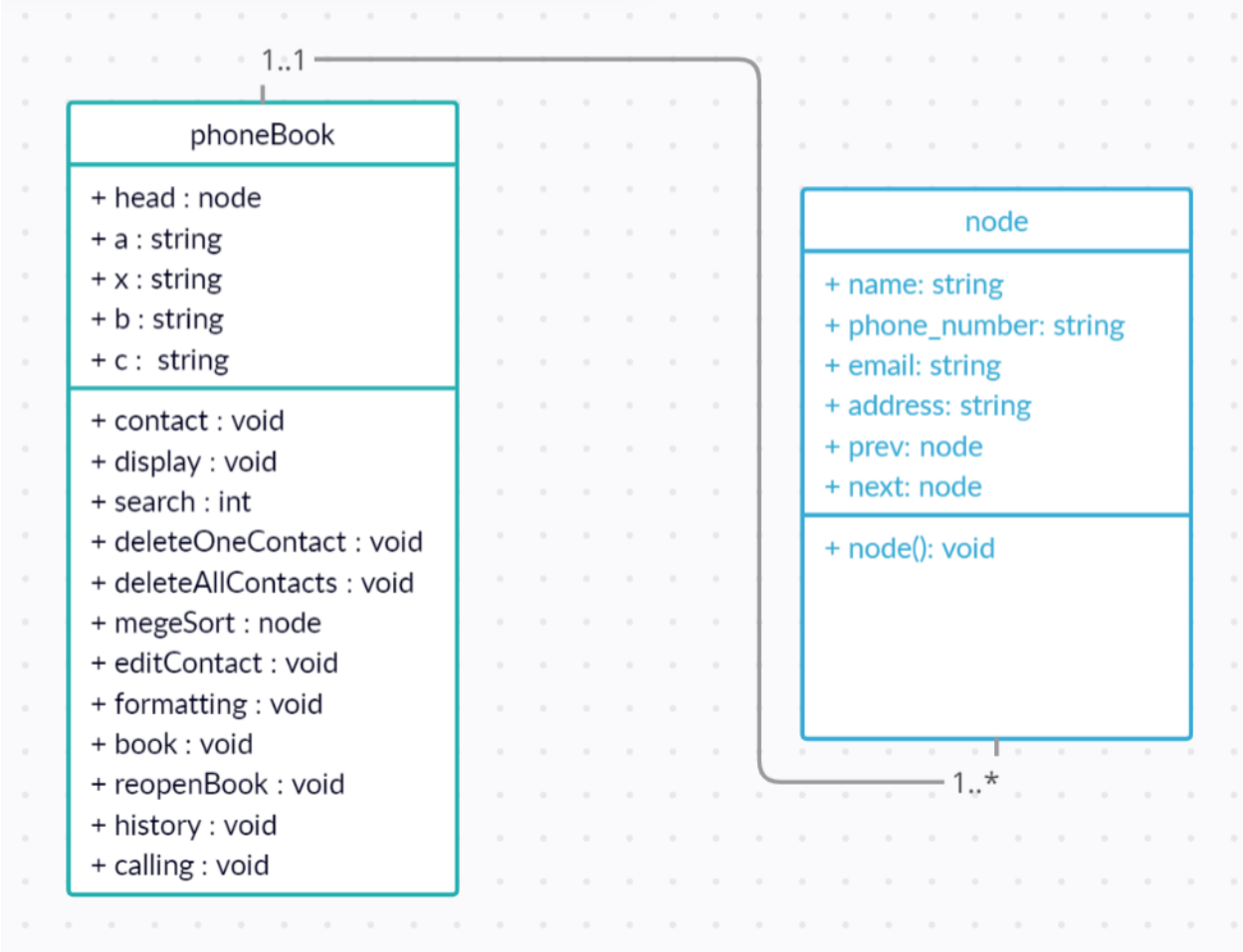
1. **addContact :** This will take input from the users and add the contact into the phonebook. It has been implemented using a doubly linked list.
2. **display :** This member function is used to display the contacts in the phonebook.
3. **search :** This function takes inputs from the users . Users can search a contact either by contact name or by phone number.
4. **deleteAllContacts :** This member function as the name suggests is used to delete all the contacts present in the contact list by deleting all the nodes.
5. **deleteOneContact :** This member function first searches the contact which has to be deleted and then deleted it from the contact list.
6. **midEle :** This member function will return the mid element of the doubly linked list.
7. **merge :** This member function is used to merge the nodes in sorted form and returns the merged doubly linked list.

8. **mergeSort :** This sorting method runs with a complexity of O(nlogn). Contact list has been sorted alphabetically on the basis of name.Sorting of doubly linked list has been used here.
9. **editContact :** This member function takes input from users and searches the given name or number into the contact list and edit that.
10. **formatting :** This member function is used to structure the output format on the console and takes command at every step.
11. **book :** This member function writes the linked lists' nodes data into a file.
12. **reopenBook :** This member function reads the file and stores the data into the doubly linked lists for keeping the records.
13. **history :** This member function prints the stack of nodes returned from the calling function. These printed records are a list of recently called persons.
14. **calling :** This member function provides the virtual facility to call a person and stores the information into the stack for keeping the records of recent call logs.

LIBRARY USED:

- #include<iostream>
- #include<fstream>
- #include<sstream>
- #include<stack>

UML DIAGRAM



IMPLEMENTATION

```
#include<iostream>
#include<fstream>
#include<sstream>
#include<stack>
using namespace std;
```

```
class node{
    public:
    string name;
    string phone_number;
    string email;
    string address;
    node*next;
    node*prev;
    node(){
        next=NULL;
        prev=NULL;
    }
};

stack<node*> st;


class phoneBook{
    public:
    node*head;
    string a;
    string x;
    string b;
    string c;

    phoneBook()
    {
        head=NULL;
        a="";
```

```
    x="";
    b="";
    c="";
}

void addContact()
{
    if(head==NULL)
    {
        node * n= new node;
        cout<<"Name of the Person: ";
        cin>>a;
        n->name=a;

        cout<<"Enter Contact Number: ";
        cin>>x;
        n->phone_number=x;

        cout<<"Enter email: ";
        cin>>b;
        n->email=b;

        cout<<"Enter address: ";
        cin>>c;
        n->address=c;

        n->next=NULL;
        n->prev=NULL;
        head=n;
        cout<<"Contact added successfully"<<endl;
```

```
    }
    else{
        node * n= new node;
        cout<<"Name of the Person: ";
        cin>>a;
        n->name=a;

        cout<<"Enter Contact Number: ";
        cin>>x;
        n->phone_number=x;

        cout<<"Enter email: ";
        cin>>b;
        n->email=b;

        cout<<"Enter address: ";
        cin>>c;
        n->address=c;

        n->next=NULL;
        node*temp=head;
        while(temp->next!=NULL)
        {
            temp=temp->next;
        }
        temp->next=n;
        n->prev=temp;
        cout<<"Contact added successfully"<<endl;
    }
}
```

```
  void display()
  {
     if(head==NULL)
     {
        cout<<"Welcome to the PhoneBook"<<endl;
        cout<<"PhoneBook is empty,Please add some contacts"<<endl;
        cout<<"ThankYou"<<endl;
        return;
     }

     int total=0;
     head=mergeSort(head);
     node*temp=head;
     cout<<" Name"<<"   Number"<<"  Email"<<"   Address\n";
     while(temp!=NULL)
     {
        total++;
        cout<<temp->name;
        cout<<"   "<<temp->phone_number;
        cout<<"   "<<temp->email;
        cout<<"  "<<temp->address;
        cout<<endl;
        temp=temp->next;
     }
     cout<<endl<<"Total Number of Contacts in the Phonebook:
"<<total<<endl;

  }
```

```
int search()
{
    bool flag=false;
    node*temp=head;
    cout<<"******************"<<endl;
    cout<<"Press 1 if you want to search by Name"<<endl;
    cout<<"Press 2 if you want to search by Phone Number"<<endl;
    int command;
    cout<<"Enter the command:"<<endl;
    cin>>command;

    if(command==1 and temp!=NULL)
    {
        cout<<"Enter the name to be searched:"<<endl;
        cin>>a;
        while(temp!=NULL)
        {
            if(temp->name==a)
            {
                cout<<"***********"<<endl;
                cout<<"Name :"<<temp->name<<endl;
                cout<<"Phone NUmber: "<<temp->phone_number<<endl;
                cout<<"Email: "<<temp->email<<endl;
                cout<<"Address: "<<temp->address<<endl;
                cout<<"***********"<<endl;
                flag=true;
                break;
            }
            temp=temp->next;
        }
```

```
        if(flag==false)
        {
            cout<<"Contact doesn't exist by this name"<<endl;
        }
    }
    else if(command==2 and temp!=NULL)
    {
        cout<<"Enter the Phone Number you want to search:"<<endl;
        cin>>x;
        while(temp!=NULL)
        {
            if(temp->phone_number==x)
            {
                cout<<"***********"<<endl;
                cout<<"Name :"<<temp->name<<endl;
                cout<<"Phone NUmber: "<<temp->phone_number<<endl;
                cout<<"Email: "<<temp->email<<endl;
                cout<<"Address: "<<temp->address<<endl;
                cout<<"***********"<<endl;
                flag=true;
                break;
            }
            temp=temp->next;
        }
        if(flag==false)
        {
            cout<<"Contact doesn't exist by this number"<<endl;
        }
    }
}
```

```
void deleteAllContacts()
{
    node*temp=head;
    node*temp2;
    if(head==NULL)
    {
        cout<<"PhoneBook is already empty"<<endl;
        return;
    }
    while(temp!=NULL)
    {
        temp2=temp;
        temp=temp->next;
        delete temp2;
    }
    head=NULL;
    cout<<"All contacts had been deleted successfully"<<endl;

}

void deleteOneContact()
{
    node*temp=head;
    cout<<"****************"<<endl;
    cout<<"Press 1 if you want to search by Name"<<endl;
    cout<<"Press 2 if you want to search by Phone Number"<<endl;
    int command;
    cout<<"Enter the command:"<<endl;
    cin>>command;
```

```
if(command==1 and temp!=NULL)
{
    bool flag=false;
    cout<<"Enter the name to be searched:"<<endl;
    cin>>a;
    while(temp!=NULL)
    {
        if(temp->name==a)
        {
            cout<<"***********"<<endl;
            cout<<"Name :"<<temp->name<<endl;
            cout<<"Phone NUmber: "<<temp->phone_number<<endl;
            cout<<"Email: "<<temp->email<<endl;
            cout<<"Address: "<<temp->address<<endl;
            cout<<"***********"<<endl;
            flag=true;
            break;
        }
        temp=temp->next;
    }
    if(flag==true)
    {
        int command;
        cout<<"Press 1 to delete the contact"<<endl;
        cin>>command;
        if(command==1 and temp==head)
        {
            node*t1=temp;
            temp=temp->next;
```

```
            delete t1;
            temp->prev=NULL;
            head=temp;
            cout<<"Contact deleted successfully"<<endl;
        }
        else if(command==1 and temp->next==NULL)
        {
            temp->prev->next=NULL;
            delete temp;
            cout<<"Contact deleted successfully"<<endl;
        }
        else if(command==1)
        {
            node*t1=temp;
            temp->prev->next=t1->next;
            temp->next->prev=t1->prev;
            delete t1;
            cout<<"Contact deleted successfully"<<endl;
        }
        else{
            cout<<"Please enter valid command"<<endl;
        }
    }
    else if(flag==false)
    {
        cout<<"Contact by this name doesn't exist in phoneBook"<<endl;
    }
}
else if(command==2 and temp!=NULL)
{
```

```
bool flag=false;
cout<<"Enter the number to be searched:"<<endl;
cin>>x;
while(temp!=NULL)
{
    if(temp->phone_number==x)
    {
        cout<<"***********"<<endl;
        cout<<"Name :"<<temp->name<<endl;
        cout<<"Phone NUmber: "<<temp->phone_number<<endl;
        cout<<"Email: "<<temp->email<<endl;
        cout<<"Address: "<<temp->address<<endl;
        cout<<"***********"<<endl;
        flag=true;
        break;
    }
    temp=temp->next;
}
if(flag==true)
{
    int command;
    cout<<"Press 1 to delete the contact"<<endl;
    cin>>command;
    if(command==1 and temp==head)
    {
        node*t1=temp;
        temp=temp->next;
        delete t1;
        temp->prev=NULL;
        head=temp;
```

```
            cout<<"Contact deleted successfully"<<endl;
        }
        else if(command==1 and temp->next==NULL)
        {
            temp->prev->next=NULL;
            delete temp;
            cout<<"Contact deleted successfully"<<endl;
        }
        else if(command==1)
        {
            node*t1=temp;
            temp->prev->next=t1->next;
            temp->next->prev=t1->prev;
            delete t1;
            cout<<"Contact deleted successfully"<<endl;
        }
        else{
            cout<<"Please enter valid command"<<endl;
        }
    }
    else if(flag==false)
    {
        cout<<"Contact by this number doesn't exist in phoneBook"<<endl;
    }
  }
}

//slow will point to the middle element of the Linked List
node*midEle(node*head)
{
```

```
    node*slow=head;
    node*fast=slow->next;
    while(fast!=NULL and fast->next!=NULL)
    {
        slow=slow->next;
        fast=fast->next->next;
    }
    return slow;
}

node*merge(node*a,node*b)
{
    node*dummy=new node;
    node*curr=dummy;
    while(a!=NULL and b!=NULL)
    {
        if(a->name<b->name)
        {
            curr->next=a;
            a=a->next;
            curr=curr->next;
        }
        else{
            curr->next=b;
            b=b->next;
            curr=curr->next;
        }
    }
    while(a!=NULL)
    {
```

```
        curr->next=a;
        a=a->next;
        curr=curr->next;
    }
    while(b!=NULL)
    {
        curr->next=b;
        b=b->next;
        curr=curr->next;
    }
    return dummy->next;
}

node*mergeSort(node*head)
{
    if(head==NULL or head->next==NULL)
    {
        return head;
    }
    node*mid=midEle(head);
    node*rightStart=mid->next;
    mid->next=NULL;
    node*a=mergeSort(head);
    node*b=mergeSort(rightStart);
    node*newHead=merge(a,b);
    return newHead;
}

int editContact()
{
```

```
node*temp=head;
cout<<"******************"<<endl;
cout<<"Press 1 if you want to search by name"<<endl;
cout<<"Press 2 if you want to search by number"<<endl;
int command;
cout<<"Enter the command :"<<endl;
cin>>command;

if(command==1 and temp!=NULL)
{
    bool flag=false;
    cout<<"Enter the name to be edited:"<<endl;
    cin>>a;
    while(temp!=NULL)
    {
        if(temp->name==a)
        {
            cout<<"****************"<<endl;
            cout<<"Name :"<<temp->name<<endl;
            cout<<"Contact Number :"<<temp->phone_number<<endl;
            cout<<"Email :"<<temp->email<<endl;
            cout<<"Address :"<<temp->address<<endl;
            flag=1;
            break;
        }
        temp=temp->next;
    }
    if(flag==1)
    {
        int command;
```

```
        cout<<"Press 1 to edit the contact : "<<endl;
        cin>>command;
        if(command==1)
        {
            cout<<"ENter the new name :"<<endl;
            cin>>a;
            cout<<"Enter the updated number :"<<endl;
            cin>>x;
            cout<<"Enter the updated email :"<<endl;
            cin>>b;
            cout<<"Enter the updated address :"<<endl;
            cin>>c;

            temp->name=a;
            temp->phone_number=x;
            temp->email=b;
            temp->address=c;

            cout<<"Contact updated successfully"<<endl;
        }
        else{
            cout<<"Enter the right command"<<endl;
        }
    }
}
else if(command==2 and temp!=NULL)
{
    bool flag=false;
    cout<<"Enter the contact number too be edited :";
    cin>>x;
```

```
while(temp!=NULL)
{
    if(temp->phone_number==x){
        cout<<"**************"<<endl;
        cout<<"Name :"<<temp->name<<endl;
        cout<<"Contact Number :"<<temp->phone_number<<endl;
        cout<<"Email :"<<temp->email<<endl;
        cout<<"Address :"<<temp->address<<endl;
        flag=true;
        break;
    }
    temp=temp->next;
}
if(flag==true){
    int command;
    cout<<"Press 1 to edit the contact:"<<endl;
    cin>>command;
    if(command==1){
        cout<<"ENter the new name :"<<endl;
        cin>>a;
        cout<<"Enter the updated number :"<<endl;
        cin>>x;
        cout<<"Enter the updated email :"<<endl;
        cin>>b;
        cout<<"Enter the updated address :"<<endl;
        cin>>c;

        temp->name=a;
        temp->phone_number=x;
        temp->email=b;
```

```
            temp->address=c;

            cout<<"Contact updated successfully"<<endl;
          }
          else{
            cout<<"Please enter the right command"<<endl;
          }
        }
    }
    else{
        cout<<"Please enter the right command "<<endl;
    }
}
void formatting(){
        cout<<"**************"<<endl;
            cout<<"  1. Add a Contact"<<endl;
            cout<<"  2. Edit an existing Contact"<<endl;
            cout<<"  3. Delete a Contact"<<endl;
            cout<<"  4. Search a Contact"<<endl;
            cout<<"  5. Display All the Contacts"<<endl;
            cout<<"  6. Delete All Contacts"<<endl;
        cout<<"  7. Recent Call History List"<<endl;
            cout<<"**************"<<endl;

            int command;
            cout<<"  Enter the Command: ";
            cin>>command;
            try
            {
                    if(command>=1&&command<=7)
```

```
    {
            if(command==1)
    {
            addContact();
            book();
    formatting();
    }
    else if(command==2)
    {
            editContact();
 book();
            formatting();
           }
    else if(command==3)
    {
    deleteOneContact();
book();
    formatting();
    }
    else if(command==4)
    {
            search();
            formatting();
    }
    else if(command==5)
    {
            display();
            book();
            formatting();
    }
```

```
                else if(command==6)
                {
                        deleteAllContacts();
                        book();
                        formatting();
                }
            else if(command==7)
            {
                calling();
                formatting();
            }
                        }
                        else
                        {
                                throw(command);
                        }
                }
                catch(int command)
                {
                        cout<<"  You Entered wrong Command... Run the
Code Again"<<endl;
                        formatting();
                }
        }
  void book()
  {
     node*temp=head;
     ofstream myfile("Phonebook.txt");
     if(myfile.is_open()){
        while(temp!=NULL)
```

```
        {
            myfile<<temp->name<<"\n";
            myfile<<temp->phone_number<<"\n";
            myfile<<temp->email<<"\n";
            myfile<<temp->address<<"\n";

            temp=temp->next;
        }
        myfile.close();

    }
    else{
        cout<<"File is Empty."<<endl;
    }
}
void reopenbook()
{
    string str="";
    fflush(stdin);
    fflush(stdout);
    ifstream myfile("Phonebook.txt");
    fflush(stdin);
    fflush(stdout);
    if(myfile.is_open() && myfile.peek()!=EOF){
        int i=0;
        node*n=new node;
        while(myfile>>str){
            if(i%4==0){
                if(head==NULL){
                    n->name=str;
```

```
            n->next=NULL;
            n->prev=NULL;
            head=n;
        }else{
            n=new node();
            n->name=str;
            n->next=NULL;
            node*temp=head;
            while(temp->next!=NULL){
                temp=temp->next;
            }
            temp->next=n;
            n->prev=temp;
        }
    }else if(i%4==1){
        if(head==NULL){
            n->phone_number=str;
            n->next=NULL;
            n->prev=NULL;
            head=n;
        }else{
            n->phone_number=str;
        }
    }
    else if(i%4==2){
        if(head==NULL){
            n->email=str;
            n->next=NULL;
            n->prev=NULL;
            head=n;
```

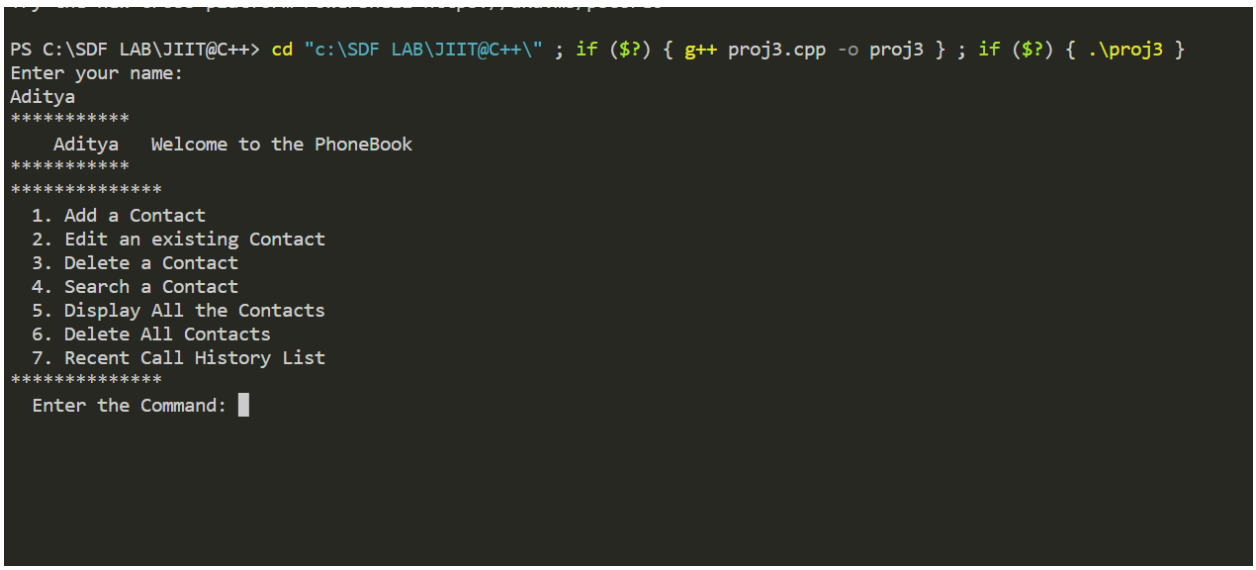
```
            }else{
                n->email=str;
            }
        }
        else if(i%4==3){
            if(head==NULL){
                n->address=str;
                n->next=NULL;
                n->prev=NULL;
                head=n;
            }else{
                n->address=str;
            }
        }
        i++;
    }
    myfile.close();
  }
  else{
    cout<<"Empty file"<<endl;
  }
}
void history(stack<node *> a)
{
  while(!a.empty())
  {
    node * t =a.top();
    cout<<t->name<<"\t\t";
    cout<<t->phone_number<<"\t\t";
    cout<<t->email<<"\t\t";
```

```
        cout<<t->address<<"\t\t";
        cout<<endl;
        a.pop();
    }
}
void calling()
{

    cout<<"Enter the name of person you want to call:"<<endl;
    cin>>a;
    bool flag=false;
    node*temp=head;
    while(temp!=NULL)
    {
        if(temp->name==a)
        {
            st.push(temp);
            flag=true;
            break;
        }
        temp=temp->next;
    }
    if(flag==false)
    {
        cout<<"This contact does not exist,please add to contact first"<<endl;
    }
    else{
        history(st);
    }
}
```

```
    };
int main()
{
    phoneBook pb;
    pb.reopenbook();
    string n;
    cout<<"Enter your name: "<<endl;
    cin>>n;
    cout<<"***********"<<endl;
    cout<<"    "<<n<<"   Welcome to the PhoneBook  "<<endl;
    cout<<"***********"<<endl;
    pb.formatting();
    return 0;
}
```

OUTPUT



```
**********
    Aditya   Welcome to the PhoneBook
**********
**********
  1. Add a Contact
  2. Edit an existing Contact
  3. Delete a Contact
  4. Search a Contact
  5. Display All the Contacts
  6. Delete All Contacts
  7. Recent Call History List
**********
  Enter the Command: 5
 Name   Number  Email   Address
akshat   777   @ak  jhgbc
atharv   875   @at  rajasthan
marvelous   480   @youtuber  lucknow
scooty   564   @scooty  agra
vipul   8756   @w  jhgd
yash   123   @y  kjgaef

Total Number of Contacts in the Phonebook: 6
**********
  1. Add a Contact
  2. Edit an existing Contact
  3. Delete a Contact
  4. Search a Contact
  5. Display All the Contacts
  6. Delete All Contacts
  7. Recent Call History List
```

```
  Enter the Command: 1
Name of the Person: shubhay
Enter Contact Number: 876
Enter email: @shu
Enter address: kota
Contact added successfully
**********
  1. Add a Contact
  2. Edit an existing Contact
  3. Delete a Contact
  4. Search a Contact
  5. Display All the Contacts
  6. Delete All Contacts
  7. Recent Call History List
**********
  Enter the Command: 5
 Name   Number  Email   Address
akshat   777   @ak  jhgbc
atharv   875   @at  rajasthan
marvelous   480   @youtuber  lucknow
scooty   564   @scooty  agra
shubhay   876   @shu  kota
vipul   8756   @w  jhgd
yash   123   @y  kjgaef

Total Number of Contacts in the Phonebook: 7
**********
```

```
  Enter the Command: 2
******************
Press 1 if you want to search by name
Press 2 if you want to search by number
Enter the command :
1
Enter the name to be edited:
scooty
****************
Name :scooty
Contact Number :564
Email :@scooty
Address :agra
Press 1 to edit the contact :
1
ENter the new name :
stuti
Enter the updated number :
564
Enter the updated email :
@stuti
Enter the updated address :
agra
Contact updated successfully
**************
```

```
agra
Contact updated successfully
**************
  1. Add a Contact
  2. Edit an existing Contact
  3. Delete a Contact
  4. Search a Contact
  5. Display All the Contacts
  6. Delete All Contacts
  7. Recent Call History List
**************
  Enter the Command: 5
 Name   Number  Email   Address
akshat   777   @ak  jhgbc
atharv   875   @at  rajasthan
marvelous   480   @youtuber  lucknow
shubhay   876   @shu  kota
stuti   564   @stuti  agra
vipul   8756   @w  jhgd
yash   123   @y  kjgaef

Total Number of Contacts in the Phonebook: 7
**************
  1. Add a Contact
```

```
Total Number of Contacts in the Phonebook: 7
**************
  1. Add a Contact
  2. Edit an existing Contact
  3. Delete a Contact
  4. Search a Contact
  5. Display All the Contacts
  6. Delete All Contacts
  7. Recent Call History List
**************
  Enter the Command: 3
****************
Press 1 if you want to search by Name
Press 2 if you want to search by Phone Number
Enter the command:
2
Enter the number to be searched:
876
***********
Name :shubhay
Phone NUmber: 876
Email: @shu
Address: kota
***********
Press 1 to delete the contact
1
Contact deleted successfully
```

```
**************
  1. Add a Contact
  2. Edit an existing Contact
  3. Delete a Contact
  4. Search a Contact
  5. Display All the Contacts
  6. Delete All Contacts
  7. Recent Call History List
**************
  Enter the Command: 5
 Name   Number  Email   Address
akshat   777   @ak  jhgbc
atharv   875   @at  rajasthan
marvelous   480   @youtuber  lucknow
stuti   564   @stuti  agra
vipul   8756   @w  jhgd
yash   123   @y  kjgaef

Total Number of Contacts in the Phonebook: 6
**************
```

```
Enter the name of person you want to call:
vipul
vipul           8756            @w              jhgd
stuti           564             @stuti          agra
**************
  1. Add a Contact
  2. Edit an existing Contact
  3. Delete a Contact
  4. Search a Contact
  5. Display All the Contacts
  6. Delete All Contacts
  7. Recent Call History List
**************
  Enter the Command: 7
Enter the name of person you want to call:
atharv
atharv          875             @at             rajasthan
vipul           8756            @w              jhgd
stuti           564             @stuti          agra
**************
  1. Add a Contact
```

```
**************
  1. Add a Contact
  2. Edit an existing Contact
  3. Delete a Contact
  4. Search a Contact
  5. Display All the Contacts
  6. Delete All Contacts
  7. Recent Call History List
**************
  Enter the Command: 6
All contacts had been deleted successfully
**************
  1. Add a Contact
  2. Edit an existing Contact
  3. Delete a Contact
  4. Search a Contact
  5. Display All the Contacts
  6. Delete All Contacts
  7. Recent Call History List
**************
  Enter the Command: 5
Welcome to the PhoneBook
PhoneBook is empty,Please add some contacts
ThankYou
**************
  1. Add a Contact
  2. Edit an existing Contact
  3. Delete a Contact
  4. Search a Contact
  5. Display All the Contacts
  6. Delete All Contacts
  7. Recent Call History List
**************
  Enter the Command:
```

CONCLUSION

We learned a lot of new things in the process of project making. We have successfully developed a phonebook management software which is very fast and efficient. The project has been developed using C++ language as per our course description.We used various libraries. We provided many options in our software as per the demands of users.

Thanks to everyone!!!