CODING :

#include<fstream.h>

#include<conio.h>

#include<stdio.h>

#include<string.h>

#include<iomanip.h>

#include<dos.h>

struct node

{

unsigned long recno;

long int pin;

char name[20];

node \*link; // Dynamic memory allocation

};

// Nodes are declared for sorting the phone.dat data file according

to recno,pin and name respectively.

node \*first,\*ptr1,\*ptr2,\*ptr,\*temp;

//Declaration of class for maintaining the data of customer

class person

{

private:

unsigned long record\_id;

char person\_name[20];

char res\_address[30];

long int res\_pincode;

char res\_phone\_no1[20];

char occu\_pation[10];

char company\_name[20];

char off\_address[20];

long int off\_pincode;

char off\_phone\_no1[20];

public:

person()

{

record\_id=0;

res\_pincode=off\_pincode=0;

res\_phone\_no1;

off\_phone\_no1;

}

// Generating automatic record number for customer

unsigned long get\_rec\_no();

// Function to input data records for customers

void get\_data();

// Displaying individual customers telephone and address information

void show\_data();

// Appends new customer information into data file

void add\_object();

// Extracts the data records from file to linked list

void make\_index();

// Arranges database acc. to name

void sort\_name();

// Arranges database acc. to recno

void sort\_recno();

// Arranges database acc. to pin no.

void sort\_pin();

void show\_object();

// Prints the sorted record on screen

void sort\_print();

void del\_object();

// Modify the customers information in database

void modify\_object();

void search\_object();

void sort\_object();

void del\_all();

void reports();

}pers; // Declaring global person variable

// Declaration for the get\_rec\_no()

unsigned long person::get\_rec\_no()

{

int found=0;

unsigned long rec\_no,temp\_recno;

struct node1

{

unsigned long recno;

node1 \*link;

};

node1 \*start,\*ptr,\*ptr1,\*ptr2;

fstream infile;

infile.open("phoneno.dat",ios::in);

infile.seekg(0,ios::end);

//tellg() returns the current stream position

int n=infile.tellg();

infile.close();

if(n==0)

rec\_no=1;

else

{

infile.open("phoneno.dat",ios::in);

start=ptr=new node1;

infile.seekg(0,ios::beg);

infile.read((char\*)&pers,sizeof(pers));

while(!infile.eof())

{

ptr->recno=record\_id;

ptr->link=new node1;

ptr=ptr->link;

infile.read((char\*)&pers,sizeof(pers));

}

ptr->link=NULL;

ptr1=start;

while(ptr1->link!=NULL)

{

ptr2=ptr1->link;

while(ptr2!=NULL)

{

if(ptr2->recno<ptr1 ->recno)

{

temp\_recno=ptr2->recno;

ptr2->recno=ptr1->recno;

ptr1->recno=temp\_recno;

}

ptr2=ptr2->link;

}

ptr2=ptr1->link;

ptr1=ptr2;

}

ptr1=start;

while(ptr1!=NULL && found!=1)

{

ptr2=ptr1;

ptr1=ptr1->link;

if((ptr2->recno)+1!=ptr1->recno)

{

rec\_no=(ptr2->recno)+1;

found=1;

}

}

if(found!=1)rec\_no=(ptr2->recno)+1;

ptr=start;

while(start!=NULL)

{

start=start->link;

delete ptr;

}

}

return rec\_no;

}

void person::del\_all()

{

clrscr();

fstream file1,file2;

file1.open("phoneno.dat",ios::out||ios::trunc);

remove("phoneno.dat");

file2.open("temp.dat",ios::in);

file1.close();

file2.close();

rename("temp.dat","phone.dat");

}

// Function definition of get\_data()

void person::get\_data()

{

clrscr();

// Calling function to get record no. automatically

record\_id=pers.get\_rec\_no();

gotoxy(5,7);

cout<<"RECORD\_ID :"<<pers.record\_id;

cin.get();

gotoxy(5,8);

cout<<"ENTER THE NAME--------------------->";

cin.getline(person\_name,20);

cin.get();

gotoxy(5,9);

cout<<"RESIDENTIAL ADDRESS---------------->";

cin.getline(res\_address,30);

cin.get();

gotoxy(5,10);

cout<<"ENTER RESIDENTIAL PINCODE---------->";

cin>>res\_pincode;

cin.get();

gotoxy(5,11);

cout<<"ENTER RESIDENTIAL PHONE NO--------->";

cin.getline(res\_phone\_no1,20);

cin.get();

gotoxy(5,12);

cout<<"ENTER THE OCCUPATION--------------->";

cin.getline(occu\_pation,10);

cin.get();

gotoxy(5,13);

cout<<"ENTER COMPANY'S NAME--------------->";

cin.getline(company\_name,20);

cin.get();

gotoxy(5,14);

cout<<"ENTER COMPANY'S ADDRESS------------>";

cin.getline(off\_address,20);

cin.get();

gotoxy(5,15);

cout<<"ENTER OFFICE PINCODE--------------->";

cin>>off\_pincode;

cin.get();

gotoxy(5,16);

cout<<"ENTER OFFICE PHONE NO-------------->";

cin.getline(off\_phone\_no1,20);

cin.get();

gotoxy(5,17);

clrscr();

}

void person::show\_data()

{

clrscr();

gotoxy(5,2);

cout<<"RECORD NUMBER----------------------->"<<record\_id;

gotoxy(5,3);

cout<<"NAME-------------------------------->"<<person\_name;

gotoxy(5,4);

cout<<"RESIDENTIAL ADDERSS----------------->"<<res\_address;

gotoxy(5,5);

cout<<"RESIDENTIAL PINCODE----------------->"<<res\_pincode;

gotoxy(5,6);

cout<<"RESIDENTIAL PHONE NO---------------->"<<res\_phone\_no1;

gotoxy(5,7);

cout<<"OCCUPATION-------------------------->"<<occu\_pation;

gotoxy(5,8);

cout<<"COMPANY's NAME---------------------->"<<company\_name;

gotoxy(5,9);

cout<<"COMPANY's ADDRESS------------------->"<<off\_address;

gotoxy(5,10);

cout<<"OFFICE PINCODE---------------------->"<<off\_pincode;

gotoxy(5,11);

cout<<"OFFICE PHONE NO--------------------->"<<off\_phone\_no1;

gotoxy(10,20);

getch();

}

//This function creates a master file .

void person::add\_object()

{

fstream file;

char choice='y';

while(choice=='y')

{

file.open("phoneno.dat",ios::app);

get\_data();

file.write((char\*)&pers,sizeof(pers));

file.flush();

file.close();

clrscr();

gotoxy(10,11);

cout<<"ANY MORE RECORDS TO BE READ<<Y/N>>-------------->";

cin>>choice;

}

}

void person::del\_object()

{

fstream infile,outfile;

unsigned long rec\_no;

clrscr();

cout<<"ENTER THE RECORD ID.NO.TO BE DELETED--------->";

cin>>rec\_no;

infile.open("phoneno.dat",ios::in);

infile.seekg(0);

outfile.open("tempno.dat",ios::app);

infile.read((char\*)&pers,sizeof(pers));

while(!infile.eof())

{

if(pers.record\_id!=rec\_no)

outfile.write((char\*)&pers,sizeof(pers));

else

{

show\_data();

}

outfile.flush();

infile.read((char\*)&pers,sizeof(pers));

}

gotoxy(20,20);

cout<<"Want to Delete the record(y/n)..."<<endl;

gotoxy(55,20);

char ans;

cin>>ans;

if(ans=='n'|| ans=='N')

{

return;

}

infile.close();

outfile.close();

remove("phoneno.dat");

rename("tempno.dat","phoneno.dat");

}

void person::search\_object()

{

fstream infile;

int search\_choice;

unsigned long rec\_no;

char phno[20];

char name[20];

do

{

clrscr();

int counter=0;

gotoxy(22,7);

cout<<" SEARCH MENU ";

gotoxy(22,9);

cout<<"------------------";

gotoxy(22,11);

cout<<"RECORD ID NO. ..1";

gotoxy(22,12);

cout<<"NAME ..2";

gotoxy(22,13);

cout<<"PHONE NO. ..3";

gotoxy(22,14);

cout<<"EXIT SEARCH MENU ..4";

gotoxy(1,20);

cout<<"ENTER THE FIELD CHOICE ACCORDING TO WHICH A RECORD";

cout<<"IS TO BE SEARCHED--------->";

cin>>search\_choice;

switch(search\_choice)

{

case 1:clrscr();

cout<<"\n ENTER THE RECORD ID.NO. TO BE SEARCHED----->";

cin>>rec\_no;

infile.open("phoneno.dat",ios::in);

infile.seekg(0,ios::beg);

infile.read((char\*)&pers,sizeof(pers));

while(!infile.eof())

{

if(pers.record\_id==rec\_no)

{

counter++;

pers.show\_data();

}

infile.read((char\*)&pers,sizeof(pers));

}

infile.close();

gotoxy(20,24);

cout<<"RECORDS FOUND="<<counter;

getch();

break;

case 2:

clrscr();

cout<<"\n ENTER THE NAME TO BE SEARCHED---------->";

gets(name);

infile.open("phoneno.dat",ios::in);

infile.seekg(0,ios::beg);

infile.read((char\*)&pers,sizeof(pers));

while(!infile.eof())

{

if(strcmpi(pers.person\_name,name)==0)

{

counter++;

pers.show\_data();

}

infile.read((char\*)&pers,sizeof(pers));

}

infile.close();

gotoxy(20,24);

cout<<"RECORDS FOUND="<<counter;

getch();

break;

case 3:

clrscr();

cout<<"\nENTER THE PHONE NO.TO BE SEARCHED-------->";

cin.getline(phno,20);

cin.get();

infile.open("phoneno.dat",ios::in);

infile.seekg(0,ios::beg);

infile.read((char\*)&pers,sizeof(pers));

while(!infile.eof())

{

if(pers.res\_phone\_no1==phno||pers.off\_phone\_no1==phno)

{

counter++;

pers.show\_data();

}

infile.read((char\*)&pers,sizeof(pers));

}

infile.close();

gotoxy(20,24);

cout<<"RECORDS FOUND="<<counter;

getch();

break;

case 4:

clrscr();

gotoxy(22,15);

cout<<"YOU HAVE ENDED THE SEARCH SESSION\n";

gotoxy(27,18);

cout<<"\tTHANK YOU!";

delay(700);

break;

}

}

while(search\_choice!=4);

}

void person::modify\_object()

{

fstream file;

unsigned long code;

int modify\_choice;

do

{

clrscr();

gotoxy(22,7);

cout<<" MODIFY MENU ";

gotoxy(22,8);

cout<<" ---------------";

gotoxy(22,10);

cout<<"RESIDENTIAL INFORMATON ..1";

gotoxy(22,11);

cout<<"OFFICIAL INFORMATION ..2";

gotoxy(22,12);

cout<<"EXIT ..3";

gotoxy(22,13);

cout<<"SELECT THE INFORMATION TO BE CHANGED : ";

gotoxy(22,14);

cout<<"ENTER YOUR CHOICE----->";

cin>>modify\_choice;

if(modify\_choice!=3)

{

clrscr();

gotoxy(10,15);

cout<<"ENTER THE RECORD NO. OF THE PERSON---->";

cin>>code;

file.open("phoneno.dat",ios::in|ios::out);

file.seekg(0,ios::beg);

file.read((char\*)&pers,sizeof(pers));

int n=file.tellg();

while(!file.eof())

{

if(pers.record\_id==code)

{

switch(modify\_choice)

{

case 1:

clrscr();

cout<<"\*\*\*\*\* The Details of "<<pers.person\_name;

cin.get();

cout<<"\n\nThe old Address is : "<<pers.res\_address;

cin.get();

cout<<"\nENTER NEW RESIDENTIAL ADDRESS-------->";

cin.getline(pers.res\_address,30);

cin.get();

cout<<"The old Pin code is : "<<pers.res\_pincode;

cout<<"\nENTER NEW PINCODE-------------------->";

cin>>pers.res\_pincode;

cout<<"The old Phone No.is : "<<pers.res\_phone\_no1;

cout<<"\nENTER NEW RESIDENTIAL PHONE NO------->";

cin>>pers.res\_phone\_no1;

file.seekg(n-sizeof(pers));

file.write((char\*)&pers,sizeof(pers));

file.flush();

break;

case 2:

clrscr();

cin.get();

cout<<"\nENTER THE OCCUPATION----------->";

cin.getline(pers.occu\_pation,10);

cin.get();

cout<<"\nENTER NEW COMPANY'S NAME------->";

cin.getline(pers.company\_name,20);

cin.get();

cout<<"\nENTER NEW OFFICE ADDRESS------->";

cin.getline(pers.off\_address,20);

cin.get();

cout<<"\nENTER NEW OFFICE PIN CODE------>";

cin>>pers.off\_pincode;

cin.get();

cout<<"\nENTER NEW OFFICE PHONE NO------>";

cin>>pers.off\_phone\_no1;

file.seekg(n-sizeof(pers));

file.write((char\*)&pers,sizeof(pers));

file.flush();

break;

}

}

file.read((char\*)&pers,sizeof(pers));

n=file.tellg();

}

file.close();

}

}

while(modify\_choice!=3);

clrscr();

gotoxy(22,10);

cout<<"YOU ENDED MODIFY INFORMATION SESSION\n";

gotoxy(30,13);

cout<<"\tTHANK YOU";

delay(700);

}

void ex\_change()

{

temp=new node;

temp->link=NULL;

temp->recno=ptr2->recno;

temp->pin=ptr2->pin;

strcpy(temp->name,ptr2->name);

ptr2->recno=ptr1->recno;

ptr2->pin=ptr1->pin;

strcpy(ptr2->name,ptr1->name);

ptr1->recno=temp->recno;

ptr1->pin=temp->pin;

strcpy(ptr1->name,temp->name);

delete temp;

}

void person::make\_index()

{

fstream infile;

first=new node;

ptr=first;

infile.open("phoneno.dat",ios::in);

infile.seekg(0,ios::beg);

infile.read((char\*)&pers,sizeof(pers));

while(!infile.eof())

{

ptr->recno=record\_id;

ptr->pin=res\_pincode;

strcpy(ptr->name,pers.person\_name);

ptr->link=new node;

ptr=ptr->link;

infile.read((char\*)&pers,sizeof(pers));

}

ptr->link=NULL;

infile.close();

}

void person::sort\_name()

{

pers.make\_index();

ptr1=first;

while(ptr1->link!=NULL)

{

ptr2=ptr1->link;

while(ptr2->link!=NULL)

{

if(strcmpi(ptr2->name,ptr1->name)<0)

ex\_change();

ptr2=ptr2->link;

}

ptr2=ptr1->link;

ptr1=ptr2;

}

}

void person::sort\_recno()

{

pers.make\_index();

ptr1=first;

while(ptr1->link!=NULL)

{

ptr2=ptr->link;

while(ptr2!=NULL)

{

if(ptr2->recno<ptr1 ->recno)

ex\_change();

ptr2=ptr2->link;

}

ptr2=ptr1->link;

ptr1=ptr2;

}

}

void person::sort\_pin()

{

pers.make\_index();

ptr1=first;

while(ptr1->link!=NULL)

{

ptr2=ptr1->link;

while(ptr2!=NULL)

{

if(ptr2->pin<ptr1 ->pin)

ex\_change();

ptr2=ptr2->link;

}

ptr2=ptr1->link;

ptr1=ptr2;

}

}

void person::sort\_print()

{

fstream infile;

ptr=first;

while(ptr!=NULL)

{

infile.open("phoneno.dat",ios::in);

infile.seekg(0,ios::beg);

infile.read((char\*)&pers,sizeof(pers));

while(!infile.eof())

{

if(ptr->recno==pers.record\_id)

{

pers.show\_data();

infile.seekg(0,ios::end);

}

infile.read((char\*)&pers,sizeof(pers));

}

infile.close();

ptr=ptr->link;

}

}

void del\_index()

{

while(first!=NULL)

{

ptr=first;

first=first->link;

delete ptr;

}

}

void person::sort\_object()

{

int sort\_choice;

do

{

clrscr();

gotoxy(22,7);

cout<<" SORT MENU ";

gotoxy(22,8);

cout<<"-------------------";

gotoxy(22,10);

cout<<"SORTED RECORDS NOS. ..1";

gotoxy(22,11);

cout<<"SORTED NAMES ..2";

gotoxy(22,12);

cout<<"SORTED PINCODES NOS. ..3";

gotoxy(22,13);

cout<<"EXIT SORT MENU ..4";

gotoxy(22,20);

cout<<"ENTER YOUR CHOICE NO.----->";

cin>>sort\_choice;

switch(sort\_choice)

{

case 1:

clrscr();

pers.sort\_recno();

pers.sort\_print();

del\_index();

delay(200);

break;

case 2:

clrscr();

pers.sort\_name();

pers.sort\_print();

del\_index();

delay(200);

break;

case 3:

clrscr();

pers.sort\_pin();

pers.sort\_print();

del\_index();

delay(200);

break;

case 4:

clrscr();

gotoxy(22,10);

cout<<"YOU ENDED THE SORTED SESSION\n";

gotoxy(27,13);

cout<<"\tTHANK YOU!";

delay(700);

break;

}

}

while(sort\_choice!=4);

}

void person::reports()

{

fstream infile;

int report\_choice;

do

{

clrscr();

gotoxy(22,7);

cout<<" REPORT MENU ";

gotoxy(22,8);

cout<<"------------------";

gotoxy(5,10);

cout<<"SORTED LIST OF NAMES WITH RESIDENCE AND OFFICE PHONE NOS. ..1";

gotoxy(5,11);

cout<<"LIST OF NAMES WITH THIER OFFICE DETAILS. ..2";

gotoxy(5,12);

cout<<"LIST OF NAMES WITH THEIR RECORD NOS.AND RESIDENTIAL ADDRESS ..3";

gotoxy(5,13);

cout<<"EXIT REPORT SESSION ..4";

gotoxy(5,14);

cout<<"ENTER YOUR CHOICE NO.------>";

cin>>report\_choice;

switch(report\_choice)

{

case 1:

clrscr();

{

cout<<"\n NAME RESIDENCE PHONE NO. OFFICE PHONE NO.";

cout<<"\n---------------------------------------------------------------------";

pers.sort\_name();

ptr=first;

while(ptr!=NULL)

{

infile.open("phoneno.dat",ios::in);

infile.seekg(0,ios::beg);

infile.read((char\*)&pers,sizeof(pers));

while(!infile.eof())

{

if(ptr->recno==pers.record\_id)

{

cout<<"\n";

cout<<setiosflags(ios::left)

<<setw(28)<<pers.person\_name<<setw(30)

<<pers.res\_phone\_no1<<setw(30)

<<pers.off\_phone\_no1;

infile.seekg(0,ios::end);

}

infile.read((char\*)&pers,sizeof(pers));

}

infile.close();

ptr=ptr->link;

}

del\_index();

gotoxy(20,20);

cout<<"PRESS ANY KEY TO CONTINUE";

getch();

break;

}

case 2:

clrscr();

infile.open("phoneno.dat",ios::in);

infile.seekg(0,ios::beg);

infile.read((char \*)&pers,sizeof(pers));

while(!infile.eof())

{

gotoxy(10,5);

cout<<"NAME------------------->"<<pers.person\_name;

gotoxy(10,6);

cout<<"COMPANY'S NAME--------->"<<pers.company\_name;

gotoxy(10,7);

cout<<"COMPANY'S ADDRESS------>"<<pers.off\_address;

gotoxy(10,8);

cout<<"OFFICE PHONE NO.------->"<<pers.off\_phone\_no1;

gotoxy(10,10);

cout<<"PRESS ANY KEY TO CONTINUE";

getch();

infile.read((char \*)&pers,sizeof(pers));

clrscr();

}

infile.close();

break;

case 3:

clrscr();

cout<<"\nREC NO. NAME RES.ADDRESS RES PHONE NO.";

cout<<"\n-------------------------------------------------------------";

infile.open("phoneno.dat",ios::in);

infile.seekg(0,ios::beg);

infile.read((char\*)&pers,sizeof(pers));

while(!infile.eof())

{

cout<<"\n";

cout<<setiosflags(ios::left)

<<setw(15)<<pers.record\_id

<<setw(15)<<pers.person\_name<<

setw(18)<<pers.res\_address<<

setw(35)<<res\_phone\_no1;

cout<<setw(55)<<" ";

infile.read((char\*)&pers,sizeof(pers));

}

infile.close();

gotoxy(20,40);

cout<<"\n PRESS ANY KEY TO CONTINUE";

getch();

break;

case 4:

clrscr();

gotoxy(22,10);

cout<<"YOU HAVE ENDED REPORT SESSION\n";

gotoxy(27,13);

cout<<"\tTHANK YOU";

delay(700);

break;

}

}

while(report\_choice!=4);

}

void main()

{

int main\_choice;

do

{

clrscr();

gotoxy(15,3);

cout<<" WELCOME TO TELEPHONE DIRECTORY ";

gotoxy(16,4);

cout<<" ================================== ";

gotoxy(19,6);

cout<<" MAIN MENU ";

gotoxy(21,7);

cout<<" ============================= ";

gotoxy(25,11);

cout<<" ADD A NEW RECORD ..1";

gotoxy(25,12);

cout<<" DELETE A RECORD ..2";

gotoxy(25,13);

cout<<" MODIFY A RECORD ..3";

gotoxy(25,14);

cout<<" SEARCH A RECORD ..4";

gotoxy(25,15);

cout<<" SORTED INFORMATION ..5";

gotoxy(25,16);

cout<<" REOPORTS ..6";

gotoxy(25,17);

cout<<" DELETE ALL RECORDS ..7";

gotoxy(25,18);

cout<<" EXIT ..8";

gotoxy(25,20);

cout<<"ENTER YOUR CHOICE NO.--------->";

cin>>main\_choice;

switch(main\_choice)

{

case 1:

pers.add\_object();

break;

case 2:

pers.del\_object();

break;

case 3:

pers.modify\_object();

break;

case 4:

pers.search\_object();

break;

case 5:

pers.sort\_object();

break;

case 6:

pers.reports();

break;

case 7:

pers.del\_all();

cout<<"\n\n\t\tALL RECORDS DELETED";

cout<<"\n\n\t\tPress Any Key To Continue.....";

getch();

break;

case 8:

clrscr();

gotoxy(22,10);

cout<<"YOU HAVE ENDED THE SESSION\n";

gotoxy(27,13);

cout<<"\tTHANK YOU";

delay(1000);

break;

}

}

while(main\_choice!=8);

}