***SUDOKU***

#include<iostream.h>

#include<conio.h>

#include<stdio.h>

#include<stdlib.h>

#include<fstream.h>

#include<string.h>

#include<iomanip.h>

#include<process.h>

int a[9][9],r,c,x=0,y=0,flag=0,flag1=0,flag2=0,flag3=0;

int temp1,temp2,rndm,namei=0,ch3; //ch=main dowhile

char ch='y',ch1,ch2,name[10][20]; //ch1=what we enter in game

ofstream fout; //ch2=switch (menu)

ifstream fin , fin1; //ch3=choosen player no.

class nam{ //namei= no. of names

char n[20];

public:

void in(char ch[20])

{ strcpy(ch,n);

}

void out(char ch[20])

{ strcpy(n,ch);

}

}n1;

class save{

int b[9][9];

public:

int in(int r1,int c1)

{ return b[r1][c1];

}

void out(int ch1,int r1,int c1)

{ b[r1][c1]=ch1;

}

}s1;

void info();

void nameput();

void put();

void display();

void check();

void fileinput();

void ending();

void main()

{

nameput();

do{

clrscr();

cout<<setw(60)<<"Current Player - "<<name[ch3]<<"\n";

cout<<setw(45)<<" MENU \n\n";

cout<<setw(45)<<"1.) New Game \n\n";

cout<<setw(45)<<"2.) Continue \n\n";

cout<<setw(45)<<"3.) Choose Player\n\n";

cout<<setw(45)<<"4.) Instructions \n\n";

cout<<setw(45)<<"5.) Exit \n\n";

cin>>ch2;

switch(ch2)

{

case '1':randomize();

fin.open("put.dat",ios::app, ios::binary);

fin1.open("save.dat",ios::app, ios::binary);

fout.open("temp.dat",ios::binary);

for(r=0;!fin1.eof();r++)

{ fin1.read((char\*)&s1,sizeof(s1));

if(fin1.eof()) break;

if(r==ch3)

{ rndm = random(8);

fin.seekg(rndm\*324); //select randomly from any sudoku

fin.read((char\*)&s1,sizeof(s1)); //save values in s1 from 'put'

fout.write((char\*)&s1,sizeof(s1)); //save valuse in 'save' from s1

}

else fout.write((char\*)&s1,sizeof(s1));

}

fout.close();

fin1.close();

fin.close();

remove("save.dat");

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

case '2': x=0;y=0;flag1=0;flag=0; //flag1 for (x,y)pointer

put(); //flag for checking

while(!flag2) //flag2 for ending

{ flag1=0;

display();

if(flag1==1) continue;

if(flag3==1) break;

check();

fileinput();

ending();

}

if(flag3==1) break;

cout<<"You Won!! \n";

cout<<"Yipeeeee!!\n\n";

break;

case '3': clrscr();

flag3=1;r=0;

cout<<"\n"<<setw(40)<<"Choose Players\n\n\n";

for(;r<namei;r++)

cout<<setw(25)<<(r+1)<<". "<<name[r]<<"\n\n";

cout<<setw(25)<<(r+1)<<". Any Other \n";

cin>>ch3;

ch3--;

if(ch3 == namei)

{ fout.open("name.dat",ios::app, ios::binary);

cout<<"Enter your name - ";

cin>>name[ch3];

n1.out(name[ch3]);

fout.seekp(ch3\*20);

fout.write((char\*)&n1,sizeof(n1)); //saving new players name

fout.close(); //in name file

namei++;

randomize();

fin.open("put.dat",ios::app, ios::binary); //creating new save data

fout.open("save.dat",ios::app ,ios::binary); //for new player

rndm = random(8);

fin.seekg(rndm\*324); //select randomly from any sudoku

fin.read((char\*)&s1,sizeof(s1)); //save values in s1 from 'put'

fout.write((char\*)&s1,sizeof(s1)); //save valuse in 'save' from s1

fout.close();

fin.close();

}

fout.open("nameno.dat",ios::binary);

fout<<(ch3+1);

fout.close();

break;

case '4':info();

flag3=1;

break;

case '5':exit(0);

}; //switch ends

if(flag3==1) //flag3 -> to return to main menu after info

{ flag3=0;

continue;

}

cout<<"\nDo you want to play again?(y/n) ";

cin>>ch;

}while(ch=='y');

}//main

void info()

{

clrscr();

cout<<" INSTRUCTIONS\n\n\n";

cout<<"1.) You can use pointer('\*') by pressing \n 'w' for up\n";

cout<<" 's' for down\n 'd' for right\n 'a' for left\n";

cout<<" Pointer by default will be at 1st box of 1st block\n\n";

cout<<"2.) Pointer will not be displayed on predefined numbers or\n";

cout<<" the numbers you entered.\n\n";

cout<<"3.) Predefined numbers are represented as -ve numbers\n\n";

cout<<"4.) If you enter any number which is not according to SUDOKU rules\n ";

cout<<" 'Wrong Input' message will be displayed.\n\n";

cout<<"5.) If you want to return to MAIN MENU in between the game you\n";

cout<<" have to enter 'n' .\n\n";

cout<<"6.) If you press the continue button the game will be continued\n";

cout<<" from where that particular player has left.\n";

cout<<" That is, if there are two players .If Player 1 press continue,\n";

cout<<" then game is resumed where Player 1 has left his game. And\n";

cout<<" if Player 2 press continue then game will be resumed from \n";

cout<<" where Player 2 has left his game .\n\n";

cout<<"7.) Best of Luck .\n\n";

cout<<" Press any key to return to MENU.\n";

cin>>ch2;

}// info ends

void nameput()

{

fin.open("name.dat" , ios::app , ios::binary);

for(namei=0;fin.eof() ==0;namei++) //since eof runs 1 time extra

{ fin.read((char\*)&n1,sizeof(n1)); //so namei will get proper value

if(fin.eof()) break;

n1.in(name[namei]);

}

fin.close();

fin.open("nameno.dat",ios::app, ios::binary) ;

fin.get(ch2);

ch3=ch2-49;

fin.close();

} //name put ends

void put()

{

fin.open("save.dat" , ios::app , ios::binary);

fin.seekg(ch3\*324);

fin.read((char\*)&s1,sizeof(s1));

for(r=0;r<9;r++)

for(c=0;c<9;c++)

a[r][c]=s1.in(r,c);

fin.close();

} //put ends

void display()

{

clrscr();

cout<<name[ch3]<<"\n";

cout<<setw(62)<<"===========================================\n";

for(r=0;r<9;r++)

{ cout<<setw(20)<<"||";

for(c=0;c<9;c++)

{ if(r==y && c==x && a[r][c]==0)

cout<<" \* ";

else if(a[r][c]==0)

cout<<" "; //3 spaces if nothing is filled

else if(a[r][c]<0)

cout<<a[r][c]<<" "; //for predefined no.

else cout<<" "<<a[r][c]<<" ";

if(c==2 || c==5 || c==8) //double line for block

cout<<"|| ";

else cout<<"|";

}

cout<<"\n";

if(r==2 || r==5 || r==8)

cout<<setw(63)<<"===========================================\n\n";

else cout<<setw(62)<<"-------------------------------------------\n";

}

if(flag==1) cout<<"Wrong Input!! \nTry Again\n";

flag=0;

cout<<"Enter - ";

cin>>ch1;

switch(ch1)

{ case 'w':y=y-1;flag1=1;break;

case 's':y=y+1;flag1=1;break;

case 'd':x=x+1;flag1=1;break;

case 'a':x=x-1;flag1=1;break;

case '1':a[y][x]=1;break;

case '2':a[y][x]=2;break;

case '3':a[y][x]=3;break;

case '4':a[y][x]=4;break;

case '5':a[y][x]=5;break;

case '6':a[y][x]=6;break;

case '7':a[y][x]=7;break;

case '8':a[y][x]=8;break;

case '9':a[y][x]=9;break;

case 'n':flag3=1;break;

default :break;

}

} //display ends

void check()

{

temp1=y; temp2=x;r=0;c=0;

for(;temp1!=0 && temp1!=3 && temp1!=6;temp1--); // for attaining first

for(;temp2!=0 && temp2!=3 && temp2!=6;temp2--); // letter of each block

for(r=temp1;r<(temp1+3);r++)

for(c=temp2;c<(temp2+3);c++)

{ if(r==y && c==x) continue;

if(a[r][c]==a[y][x] || a[r][c]==(-a[y][x]) )

flag=1; //checking in block

}

for(r=0;r<9;r++)

{ if(r==x) continue; //neglecting that particular box

if(a[y][r]==a[y][x] || a[y][r]==(-a[y][x]) )

flag=1; //checking in row

}

for(r=0;r<9;r++)

{ if(r==y) continue;

if(a[r][x]==a[y][x] || a[r][x]==(-a[y][x]) )

flag=1; //checking in column

}

if(flag==1) a[y][x]=0; //correcting the value

}//check ends

void fileinput()

{

fin.open("save.dat",ios::app, ios::binary); //modifying only that particular

fout.open("temp.dat",ios::binary); //data in save file

for(r=0;!fin.eof();r++)

{ fin.read((char\*)&s1,sizeof(s1));

if(fin.eof()) break;

if(r==ch3)

{ for(r=0;r<9;r++)

for(c=0;c<9;c++)

s1.out(a[r][c],r,c);

fout.write((char\*)&s1,sizeof(s1));

}

else fout.write((char\*)&s1,sizeof(s1));

}

fout.close();

fin.close();

remove("save.dat");

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

} //fileinput ends

void ending()

{r=0;c=0;

for(r=0;r<9;r++)

for(c=0;c<9;c++)

{ if(a[r][c]==0)

flag2=0;

}

} //ending ends