**//Source Code of Tic Tac Toe using Multiple Inheritance**

#include <iostream>

#include <cstdlib>

#include<ctime>

#include<stdlib.h>

using namespace std;

class RPS {

public:

int choice2,ac;

int scoreR1,scoreR2;

RPS()

{ scoreR1=scoreR2=0;

}

int AIinput1();

void scoreR(int,int);

void checkwin1(int,int);

};

class TTT {

public:

int a[10],choice2,scoreT1,scoreT2;

TTT()

{ scoreT1=scoreT2=0;

for(int i=0;i<10;i++)

a[i]=i;

}

int AIinput2();

void scoreT();

void checkwin2(int,int);

void show();

};

class Game:public RPS,public TTT

{

public:

int choice1,uc;

int userInput1();

int userInput2();

};

int main() {

srand(time(0));

Game g;

cout<<"Roll No. 161210040\n";

int choice;

cout<<"Which game do you want to play?";

cout<<"\n1. Rock Paper Scissor 2.Tic Tac Toe\n";

cin>>choice;

switch(choice) {

case 1: int a,b,i,n;

cout<<"How many games you want to play? ";

cin>>n;

cout<<"\n1.ROCK 2.PAPER 3.SCISSOR\n";

for(i=0;i<n;i++)

{ cout<<"Game "<<i+1<<"\n";

a=g.userInput1();

b=g.AIinput1();

g.scoreR(a,b);

}

g.checkwin1(g.scoreR1,g.scoreR2);

break;

case 2: int ch,m,j,k;

ch=5;

m=1;

while(ch!=1 && m<=5)

{ if(m==5)

ch=1;

j=g.userInput2();

m++;

k=g.AIinput2();

g.show();

g.scoreT();

if(g.scoreT1>g.scoreT2)

ch=g.scoreT1;

else if(g.scoreT1<g.scoreT2)

ch=g.scoreT2;

}

g.checkwin2(g.scoreT1,g.scoreT2);

break;

default: cout<<"\nWrong Choice";

break;

}

return 0;

}

void RPS::scoreR(int uc,int ac) {

if(uc==ac)

cout<<"";

else if(uc==1)

{ if(ac==2)

scoreR2++;

else

scoreR1++;

}

else if(uc==2)

{ if(ac==1)

scoreR1++;

else

scoreR2++;

}

else

{ if(ac==1)

scoreR2++;

else

scoreR1++;

}

cout<<"\nYour Score: "<<scoreR1;

cout<<"\tCPU Score: "<<scoreR2<<endl;

}

void RPS::checkwin1(int user,int AI)

{ if(user==AI)

cout<<"\nGAME DRAWS!\n";

else if(user<AI)

cout<<"\nCPU WINS!\n";

else

cout<<"\nYOU WIN!\n";

}

int RPS::AIinput1()

{

choice2=(rand()%3)+1;

cout<<"CPU : "<<choice2;

return choice2;

}

int Game::userInput1()

{ cout<<"You : ";

cin>>choice1;

return choice1;

}

int TTT::AIinput2()

{ int i;

do

{ choice2=(rand()%9)+1;

i=choice2;

}while((a[i]==20) || (a[i]==10));

cout<<"CPU : "<<choice2<<endl;

a[i]=20;

return choice2;

}

void TTT::scoreT()

{

if(a[1]==a[2] && a[2]==a[3])

{ if(a[1]==10)

scoreT1++;

else

scoreT2++;

}

else if(a[1]==a[4] && a[4]==a[7])

{ if(a[1]==10)

scoreT1++;

else

scoreT2++;

}

else if(a[1]==a[5] && a[5]==a[9])

{ if(a[1]==10)

scoreT1++;

else

scoreT2++;

}

else if(a[2]==a[8] && a[8]==a[5])

{ if(a[2]==10)

scoreT1++;

else

scoreT2++;

}

else if(a[3]==a[6] && a[6]==a[9])

{ if(a[3]==10)

scoreT1++;

else

scoreT2++;

}

else if(a[3]==a[5] && a[5]==a[7])

{ if(a[3]==10)

scoreT1++;

else

scoreT2++;

}

else if(a[4]==a[5] && a[5]==a[6])

{ if(a[4]==10)

scoreT1++;

else

scoreT2++;

}

else if(a[7]==a[8] && a[8]==a[9])

{

if(a[7]==10)

scoreT1++;

else

scoreT2++;

}

}

void TTT::checkwin2(int user,int AI)

{ if(user==AI)

cout<<"\nGAME DRAWS!\n";

else if(user<AI)

cout<<"\nCPU WINS!\n";

else

cout<<"\nYOU WIN!\n";

}

void TTT::show()

{ int i=1;

while(i<=9) {

if(a[i]==10)

cout<<" o ";

else if(a[i]==20)

cout<<" x ";

else

cout<<" \_ ";

if(i%3==0)

cout<<"\n";

i++;

}

cout<<endl;

}

int Game::userInput2()

{

cout<<"You : ";

cin>>choice1;

while((a[choice1]==10)||(a[choice1]==20))

{

cout<<"Already occupied!\n";

cout<<"Enter Again : ";

cin>>choice1;

}

a[choice1]=10;

return choice1;

}

#include <iostream>

#include <cstdlib>

#include<ctime>

#include<stdlib.h>

using namespace std;

class RPS {

public:

int choice2,ac;

int scoreR1,scoreR2;

RPS()

{ scoreR1=scoreR2=0;

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int AIinput1();

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void checkwin1(int,int);

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class TTT {

public:

int a[10],choice2,scoreT1,scoreT2;

TTT()

{ scoreT1=scoreT2=0;

for(int i=0;i<10;i++)

a[i]=i;

}

int AIinput2();

void scoreT();

void checkwin2(int,int);

void show();

};

class Game:public RPS,public TTT

{

public:

int choice1,uc;

int userInput1();

int userInput2();

};

int main() {

srand(time(0));

Game g;

cout<<"Roll No. 161210025\n";

int choice;

cout<<"Which game do you want to play?";

cout<<"\n1. Rock Paper Scissor 2.Tic Tac Toe\n";

cin>>choice;

switch(choice) {

case 1: int a,b,i,n;

cout<<"How many games you want to play? ";

cin>>n;

cout<<"\n1.ROCK 2.PAPER 3.SCISSOR\n";

for(i=0;i<n;i++)

{ cout<<"Game "<<i+1<<"\n";

a=g.userInput1();

b=g.AIinput1();

g.scoreR(a,b);

}

g.checkwin1(g.scoreR1,g.scoreR2);

break;

case 2: int ch,m,j,k;

ch=5;

m=1;

while(ch!=1 && m<=5)

{ if(m==5)

ch=1;

j=g.userInput2();

m++;

k=g.AIinput2();

g.show();

g.scoreT();

if(g.scoreT1>g.scoreT2)

ch=g.scoreT1;

else if(g.scoreT1<g.scoreT2)

ch=g.scoreT2;

}

g.checkwin2(g.scoreT1,g.scoreT2);

break;

default: cout<<"\nWrong Choice";

break;

}

return 0;

}

void RPS::scoreR(int uc,int ac) {

if(uc==ac)

cout<<"";

else if(uc==1)

{ if(ac==2)

scoreR2++;

else

scoreR1++;

}

else if(uc==2)

{ if(ac==1)

scoreR1++;

else

scoreR2++;

}

else

{ if(ac==1)

scoreR2++;

else

scoreR1++;

}

cout<<"\nYour Score: "<<scoreR1;

cout<<"\tCPU Score: "<<scoreR2<<endl;

}

void RPS::checkwin1(int user,int AI)

{ if(user==AI)

cout<<"\nGAME DRAWS!\n";

else if(user<AI)

cout<<"\nCPU WINS!\n";

else

cout<<"\nYOU WIN!\n";

}

int RPS::AIinput1()

{

choice2=(rand()%3)+1;

cout<<"CPU : "<<choice2;

return choice2;

}

int Game::userInput1()

{ cout<<"You : ";

cin>>choice1;

return choice1;

}

int TTT::AIinput2()

{ int i;

do

{ choice2=(rand()%9)+1;

i=choice2;

}while((a[i]==20) || (a[i]==10));

cout<<"CPU : "<<choice2<<endl;

a[i]=20;

return choice2;

}

void TTT::scoreT()

{

if(a[1]==a[2] && a[2]==a[3])

{ if(a[1]==10)

scoreT1++;

else

scoreT2++;

}

else if(a[1]==a[4] && a[4]==a[7])

{ if(a[1]==10)

scoreT1++;

else

scoreT2++;

}

else if(a[1]==a[5] && a[5]==a[9])

{ if(a[1]==10)

scoreT1++;

else

scoreT2++;

}

else if(a[2]==a[8] && a[8]==a[5])

{ if(a[2]==10)

scoreT1++;

else

scoreT2++;

}

else if(a[3]==a[6] && a[6]==a[9])

{ if(a[3]==10)

scoreT1++;

else

scoreT2++;

}

else if(a[3]==a[5] && a[5]==a[7])

{ if(a[3]==10)

scoreT1++;

else

scoreT2++;

}

else if(a[4]==a[5] && a[5]==a[6])

{ if(a[4]==10)

scoreT1++;

else

scoreT2++;

}

else if(a[7]==a[8] && a[8]==a[9])

{ if(a[7]==10)

scoreT1++;

else

scoreT2++;

}

}

void TTT::checkwin2(int user,int AI)

{ if(user==AI)

cout<<"\nGAME DRAWS!\n";

else if(user<AI)

cout<<"\nCPU WINS!\n";

else

cout<<"\nYOU WIN!\n";

}

void TTT::show()

{ int i=1;

while(i<=9) {

if(a[i]==10)

cout<<" o ";

else if(a[i]==20)

cout<<" x ";

else

cout<<" \_ ";

if(i%3==0)

cout<<"\n";

i++;

}

cout<<endl;

}

int Game::userInput2()

{ cout<<"You : ";

cin>>choice1;

while((a[choice1]==10)||(a[choice1]==20))

{ cout<<"Already occupied!\n";

cout<<"Enter Again : ";

cin>>choice1;

}

a[choice1]=10;

return choice1;

}