//tic tac toe game

#include<iostream>

#include<stdlib.h>

//#include<stdio.h>

//#include<math.h>

using namespace std;

//#include<conio.h>

char tic[3][3]; // matrix declaration

int d,e,f,a,t,i,j,x,y;

void display();

void user(); //for users move

void newdisp(); //function for display of matrix after every move

void pc(); // function for pc's move

int check(); //function for finding out the winner

int horcheck(); // function for horizontal line check

int vercheck(); //function for vertical line check

int diagcheck(); // function for diagonal check

int main(){

//clrscr(); // clears the output of the prvious screen

//randomize(); // initialize randomm function calling

int d=rand()%2; // random function calling

for(i=0;i<3;i++)

{

for(j=0;j<3;j++)

{

tic[i][j]=' '; //assign space to all cellls of matrix

}

}

display();

d==0?user():pc();

//getch();

return 0;

}

void display(){

for(t=0;t<3;t++)

{

cout<<" "<<tic[t][0]<<" | "<<tic[t][1]<<" | "<<tic[t][2]<<endl;

if(t!=2)

{

cout<<" ------|-------|------ "<<endl;

}

}

}

void user(){

cout<<"Enter the coordinates where you wnat to put your ' X ' i.e 0,1,2"<<endl;

cin>>x>>y;

if((x<0) || (x>2)&&(y<0) || (y>2)) // check the validity of the coordinates

{

cout<<"Enter the valid coordinates :"<<endl;

user();

}

else{

if(tic[x][y]==' ')

{

tic[x][y]='X';

newdisp();

}

else{

cout<<" The position os already filled"<<endl;

user();

}

}

d=check();

if(d==0)

pc();

else

{

cout<<"You are the winner !!!"<<endl;

//getche(); // requires enter to return to the program prevents return witout display

}

}

void newdisp(){

for(t=0;t<3;t++){

cout<<" "<<tic[t][0]<<" | "<<tic[t][1]<<" | "<<tic[t][2]<<endl; // display the new tic tac toe after the user or pc turn

if(t!=2)

{

cout<<" ---|---|---"<<endl;

}

}

}

void pc(){

int f,z;

//randomize();

cout<<"This is the computer move"<<endl;

for(i=0;i<=20;i++){

f=rand()%3;

z=rand()%3;

if(tic[f][z]==' ')// check the vacant space at the entered coordinates

{

tic[f][z]='O';

goto x; // exitinf from the loop to display new tic tac toe

}

else{

continue;

}

x:newdisp();

d=check();

if(d==0)

user();

else{

cout<<"Im the WINNER"<<endl;

//getche();

}

}

}

int check(){

horcheck();

vercheck();

diagcheck();

return (d||e||f);

}

int horcheck(){

if(((tic[0][0]==tic[0][1])&&(tic[0][1]==tic[0][2])&&(tic[0][1]!=' ')) || ((tic[1][0]==tic[1][1])&&(tic[1][1]==tic[1][2])&&(tic[1][1]!=' ')) || ((tic[2][0]==tic[2][1])&&(tic[2][1]==tic[2][2])&&(tic[2][2]!=' ')))

d=1;

else

d=0;

return d;

}

int vercheck(){

if(((tic[0][0]==tic[1][0])&&(tic[1][1]==tic[2][0])&&(tic[0][0]!=' ')) || ((tic[0][1]==tic[1][1])&&(tic[1][1]==tic[2][1])&&(tic[0][1]!=' ')) || ((tic[0][2]==tic[1][2])&&(tic[1][2]==tic[2][2])&&(tic[0][2]!=' ')))

e=1;

else

e=0;

return e;

}

int diagcheck(){

if(((tic[0][0]==tic[1][1])&&(tic[1][1]==tic[2][2])&&(tic[0][0]!=' ')) || ((tic[0][2]==tic[1][1])&&(tic[1][1]==tic[2][0])&&(tic[1][1]!=' ')))

f=1;

else

f=0;

return f;

}