﻿#include <iostream>

#include <ctime>

using namespace std;

const int MAX = 100;

void initializeChessBoard(char input[][MAX], int row, int colum) { // nhap ban co

for (int i = 0; i < row; i++) {

for (int j = 0; j < colum; j++) {

input[i][j] = '\*';

}

}

}

void showChessBoard(char input[][MAX], int row, int colum) {

system("cls");

cout << "cot:\t";

for (int i = 1; i <= colum; i++) {

if (i < 10) {

cout << i << " ";

}

else {

cout << i << " ";

}

}

cout << endl;

for (int i = 0; i < row; i++) {// chay dong

cout << "Dong:" << i + 1 << "\t";

for (int j = 0; j < colum; j++) {

cout << input[i][j] << " ";

}

cout << endl;

}

}

void menuGame(char input[][MAX], int &row, int &colum) {

do {

cout << "\nBan muon choi ban co bao nhieu dong bao nhieu cot luu y cot va dong phai lon hon 5";

cout << "\ndong: ";

cin >> row;

cout << "\ncot: ";

cin >> colum;

if (row < 5 || row >= MAX || colum < 5 || colum >= MAX) {

cout << "\nBan nhap sai hay nhap lai!";

}

} while (row < 5 || row >= MAX || colum < 5 || colum >= MAX);

initializeChessBoard(input, row, colum);// khoi tao ban co

cout << "\nBan co hien tai la:\n";

showChessBoard(input, row, colum);

}

void machineFight(char input[][MAX], int row, int colum, int mySelectRow, int mySelectColum) {

cout << "\nluot may: ";

if (mySelectRow == 0 && mySelectColum == 0) {

thien:

srand(time(NULL));

int selectRow = rand() % row;

srand(time(NULL));

int selectColum = rand() % colum;

if (input[selectRow][selectColum] == '\*') {

input[selectRow][selectColum] = 'O';

}

else {

goto thien;

}

showChessBoard(input, row, colum);

}

else {// vi tri ban vua danh xong

if (input[mySelectRow][mySelectColum] == 'X' && input[mySelectRow][mySelectColum + 1] == 'X' && input[mySelectRow][mySelectColum + 2] == 'X') {

input[mySelectRow][mySelectColum + 3] = 'O';

}

else if (input[mySelectRow][mySelectColum] == 'X' && input[mySelectRow][mySelectColum + 1] == 'X' && input[mySelectRow][mySelectColum + 2] == 'X' && input[mySelectRow][mySelectColum + 3] == 'X') {

input[mySelectRow][mySelectColum + 4] = 'O';

}// duong doc

else if (input[mySelectRow][mySelectColum] == 'X' && input[mySelectRow + 1][mySelectColum] == 'X' && input[mySelectRow + 2][mySelectColum] == 'X') {

input[mySelectRow + 3][mySelectColum] = 'O';

}

else if (input[mySelectRow][mySelectColum] == 'X' && input[mySelectRow + 1][mySelectColum] == 'X' && input[mySelectRow + 2][mySelectColum] == 'X' && input[mySelectRow + 3][mySelectColum] == 'X') {

input[mySelectRow + 4][mySelectColum] = 'O';

}// duong cheo

else if (input[mySelectRow][mySelectColum] == 'X' && input[mySelectRow - 1][mySelectColum - 1] == 'X' && input[mySelectRow - 2][mySelectColum - 2] == 'X') {

input[mySelectRow + 1][mySelectColum + 1] = 'O';

}

else if (input[mySelectRow][mySelectColum] == 'X' && input[mySelectRow - 1][mySelectColum - 1] == 'X' && input[mySelectRow - 2][mySelectColum - 2] == 'X' && input[mySelectRow + 1][mySelectColum + 1] == 'X') {

input[mySelectRow + 2][mySelectColum + 2] = 'O';

}

else if (input[mySelectRow][mySelectColum] == 'X' && input[mySelectRow - 1][mySelectColum + 1] == 'X' && input[mySelectRow - 2][mySelectColum + 2] == 'X') {

input[mySelectRow + 1][mySelectColum - 1] = 'O';

}

else if (input[mySelectRow][mySelectColum] == 'X' && input[mySelectRow - 1][mySelectColum + 1] == 'X' && input[mySelectRow - 2][mySelectColum + 2] == 'X' && input[mySelectRow + 1][mySelectColum - 1] == 'X') {

input[mySelectRow + 2][mySelectColum - 2] = 'O';

}

else {

vo:

srand(time(NULL));

int temp = rand() % 8;

switch (temp)

{

case 0: {

if (input[mySelectRow - 2][mySelectColum - 2] == '\*') {

input[mySelectRow - 2][mySelectColum - 2] = 'O';

}

else {

goto vo;

}

break;

}

case 1: {

if (input[mySelectRow - 2][mySelectColum - 1] == '\*') {

input[mySelectRow - 2][mySelectColum - 1] = 'O';

}

else {

goto vo;

}

break;

}

case 2: {

if (input[mySelectRow - 2][mySelectColum] == '\*') {

input[mySelectRow - 2][mySelectColum] = 'O';

}

else {

goto vo;

}

break;

}

case 3: {

if (input[mySelectRow - 1][mySelectColum - 2] == '\*') {

input[mySelectRow - 1][mySelectColum - 2] = 'O';

}

else {

goto vo;

}

break;

}

case 4: {

if (input[mySelectRow - 1][mySelectColum] == '\*') {

input[mySelectRow - 1][mySelectColum] = 'O';

}

else {

goto vo;

}

break;

}

case 5: {

if (input[mySelectRow][mySelectColum - 2] == '\*') {

input[mySelectRow][mySelectColum - 2] = 'O';

}

else {

goto vo;

}

break;

}

case 6: {

if (input[mySelectRow][mySelectColum - 1] == '\*') {

input[mySelectRow][mySelectColum - 1] = 'O';

}

else {

goto vo;

}

break;

}

case 7: {

if (input[mySelectRow][mySelectColum] == '\*') {

input[mySelectRow][mySelectColum] = 'O';

}

else {

goto vo;

}

break;

}

}// end switch

}

showChessBoard(input, row, colum);

}

}

void myFight(char input[][MAX], int row, int colum, int &myRow, int &myColum) {

do {

hoang:

cout << "\nluot ban:\ndong: ";

cin >> myRow;

cout << "\nCot: ";

cin >> myColum;

if (myRow < 1 || myRow > row || myColum < 1 || myColum > colum) {

cout << "\nBan nhap sai hay nhap lai";

}

else {

if (input[myRow - 1][myColum - 1] == '\*') {

input[myRow - 1][myColum - 1] = 'X';

showChessBoard(input, row, colum);

}

else {

cout << "\nVi tri nay khong the danh xin kiem tra lai!";

goto hoang;

}

}

} while (myRow < 1 || myRow > row || myColum < 1 || myColum > colum);

}

char checkWin(char input[][MAX], int row, int colum) {

// kiem tra duong ngang

for (int i = 0; i < row; i++) {

for (int j = 0; j <= colum - 5; j++) {

if (input[i][j] == 'X' && input[i][j + 1] == 'X' && input[i][j + 2] == 'X' && input[i][j + 3] == 'X' && input[i][j + 4] == 'X')

return 'X';

if (input[i][j] == 'O' && input[i][j + 1] == 'O' && input[i][j + 2] == 'O' && input[i][j + 3] == 'O' && input[i][j + 4] == 'O')

return 'O';

}

}

// kiem tra duong doc

for (int j = 0; j < colum; j++) {

for (int i = 0; i <= row - 5; i++) {

if (input[i][j] == 'X' && input[i + 1][j] == 'X' && input[i + 2][j] == 'X' && input[i + 3][j] == 'X' && input[i + 4][j] == 'X')

return 'X';

if (input[i][j] == 'O' && input[i + 1][j] == 'O' && input[i + 2][j] == 'O' && input[i + 3][j] == 'O' && input[i + 4][j] == 'O')

return 'O';

}

}

// kiem tra 2 đương cheo

for (int i = 0; i < row; i++) {

for (int j = 0; j < colum; j++) {

if ((input[i][j] == 'X' && input[i - 1][j - 1] == 'X' && input[i - 2][j - 2] == 'X' && input[i + 1][j + 1] == 'X' && input[i + 2][j + 2] == 'X') || (input[i][j] == 'X' && input[i - 1][j + 1] == 'X' && input[i - 2][j + 2] == 'X' && input[i + 1][j - 1] == 'X' && input[i + 2][j - 2] == 'X'))

return 'X';

if ((input[i][j] == 'O' && input[i - 1][j - 1] == 'O' && input[i - 2][j - 2] == 'O' && input[i + 1][j + 1] == 'O' && input[i + 2][j + 2] == 'O') || (input[i][j] == 'O' && input[i - 1][j + 1] == 'O' && input[i - 2][j + 2] == 'O' && input[i + 1][j - 1] == 'O' && input[i + 2][j - 2] == 'O'))

return 'O';

}

}

}

int main()

{

int myRow = 0, myColum = 0;

int row = 0, colum = 0;

int select = 0;

bool check = false;// chua ai thang

char chessBoard[MAX][MAX];

menu:

menuGame(chessBoard, row, colum);

do {

cout << "\nban danh truoc hay may danh truoc: \n1.ban danh truoc \n2.may danh truoc";

cout << "\nlua chon cua ban: ";

cin >> select;

if (select < 1 || select > 2) {

cout << "\nBan chon sai hay kiem tra lai!";

}

} while (select < 1 || select > 2);

if (select == 2) {

while (true) {

machineFight(chessBoard, row, colum, myRow, myColum);

if (checkWin(chessBoard, row, colum) == 'O') {

char yn;

cout << "May thang";

cout << "\nBan co muon tiep tuc hay khong(y : co enykey : khong): ";

cin >> yn;

if (yn == 'y' || yn == 'Y') {

goto menu;

}

else {

break;

}

}

myFight(chessBoard, row, colum, myRow, myColum);

if (checkWin(chessBoard, row, colum) == 'X') {

char yn;

cout << "Ban thang";

cout << "\nBan co muon tiep tuc hay khong(y : co enykey : khong): ";

cin >> yn;

if (yn == 'y' || yn == 'Y') {

goto menu;

}

else {

break;

}

}

}

}

else {

while (true) {

myFight(chessBoard, row, colum, myRow, myColum);

if (checkWin(chessBoard, row, colum) == 'X') {

char yn;

cout << "Ban thang";

cout << "\nBan co muon tiep tuc hay khong(y : co enykey : khong): ";

cin >> yn;

if (yn == 'y' || yn == 'Y') {

goto menu;

}

else {

break;

}

}

machineFight(chessBoard, row, colum, myRow, myColum);

if (checkWin(chessBoard, row, colum) == 'O') {

char yn;

cout << "May thang";

cout << "\nBan co muon tiep tuc hay khong(y : co enykey : khong): ";

cin >> yn;

if (yn == 'y' || yn == 'Y') {

goto menu;

}

else {

break;

}

}

}

}

system("pause");

return 0;

}