Task 3:

#include <iostream>

using namespace std;

class TicTacToe

{

private:

char board[3][3];

public:

TicTacToe()

{

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

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

board[i][j] = ' ';

}

}

}

void drawboard() {

system("cls");

cout << "\tWelcome to Tic Tac Toe! \n";

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

cout << "\t | | " << endl;

cout << "\t " << board[i][0] << " | " << board[i][1] << " | " << board[i][2] << endl;

cout << "\t\_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_" << endl;

}

cout << "\t | | " << endl;

}

void move(int n, char player) {

int row, col;

bool validMove = false;

cout << "Player " << player << " enter the number of the field you would like to move:\n";

while (!validMove) {

cin >> n;

if (n < 1 || n > 9) {

cout << "Invalid input. Please enter a number between 1 and 9:\n";

}

else if (board[(n - 1) / 3][(n - 1) % 3] != ' ') {

cout << "This is already taken\n";

}

else {

row = (n - 1) / 3;

col = (n - 1) % 3;

board[row][col] = player;

validMove = true;

}

}

}

void playersign(char& player) {

if (player == 'X') {

player = 'O';

}

else if (player == 'O') {

player = 'X';

}

}

bool draw() {

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

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

if (board[i][j] == ' ')

return false;

}

}

return true;

}

bool win(char player) {

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

if (board[i][0] == player && board[i][1] == player && board[i][2] == player) {

return true;

}

}

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

if (board[0][j] == player && board[1][j] == player && board[2][j] == player) {

return true;

}

}

if (board[0][0] == player && board[1][1] == player && board[2][2] == player) {

return true;

}

if (board[0][2] == player && board[1][1] == player && board[2][0] == player) {

return true;

}

return false;

}

};

int main() {

TicTacToe game;

char player = 'X';

int n = 0;

do {

game.drawboard();

game.move(n, player);

game.playersign(player);

} while (!game.win('X') && !game.win('O') && !game.draw());

game.drawboard();

if (game.win('X')) {

cout << "Player X wins!\n";

}

else if (game.win('O')) {

cout << "Player O wins!\n";

}

else {

cout << "It's a draw!\n";

}

}

