**Task 2**

Build a simple console-based Tic-Tac-Toe game that allows two players to play against each other Game Board: Create a 3x3 grid as the game board. Players: Assign "X" and "O" to two players. Display Board: Show the current state of the board. Player Input: Prompt the current player to enter their move. Update Board: Update the game board with the player's move. Check for Win: Check if the current player has won. Check for Draw: Determine if the game is a draw. Switch Players: Alternate turns between "X" and "O" players. Display Result: Show the result of the game (win, draw, or ongoing). Play Again: Ask if the players want to play another game

CODE:

#include <iostream>

using namespace std;

void displayBoard(char board[3][3]) {

cout << "\n";

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

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

cout << board[i][j];

if (j < 2) cout << " | ";

}

cout << "\n";

if (i < 2) cout << "--+---+--\n";

}

cout << "\n";

}

bool checkWin(char board[3][3], char player) {

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

if ((board[i][0] == player && board[i][1] == player && board[i][2] == player) || // Row

(board[0][i] == player && board[1][i] == player && board[2][i] == player)) // Column

return true;

}

if ((board[0][0] == player && board[1][1] == player && board[2][2] == player) || // Diagonal

(board[0][2] == player && board[1][1] == player && board[2][0] == player)) // Diagonal

return true;

return false;

}

// Function to check for a draw

bool checkDraw(char board[3][3]) {

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

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

if (board[i][j] != 'X' && board[i][j] != 'O')

return false;

}

}

return true;

}

int main() {

char board[3][3];

char currentPlayer;

int row, col;

char playAgain = 'y';

while (playAgain == 'y' || playAgain == 'Y') {

// Initialize board

currentPlayer = 'X';

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

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

board[i][j] = '1' + i \* 3 + j; // Assign numbers 1-9 for easier input

}

}

bool gameOver = false;

while (!gameOver) {

displayBoard(board);

cout << "Player " << currentPlayer << ", enter your move (1-9): ";

int move;

cin >> move;

row = (move - 1) / 3;

col = (move - 1) % 3;

if (move < 1 || move > 9 || board[row][col] == 'X' || board[row][col] == 'O') {

cout << "Invalid move. Try again.\n";

continue;

}

board[row][col] = currentPlayer;

if (checkWin(board, currentPlayer)) {

displayBoard(board);

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

gameOver = true;

} else if (checkDraw(board)) {

displayBoard(board);

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

gameOver = true;

} else {

// Switch players

currentPlayer = (currentPlayer == 'X') ? 'O' : 'X';

}

}

cout << "Do you want to play again? (y/n): ";

cin >> playAgain;

}

cout << "Thanks for playing Tic-Tac-Toe! Goodbye!\n";

return 0;

}

OUTPUT:

1 | 2 | 3

--+---+--

4 | 5 | 6

--+---+--

7 | 8 | 9

Player X, enter your move (1-9): 5

1 | 2 | 3

--+---+--

4 | X| 6

--+---+--

7 | 8 | 9

Player O, enter your move (1-9): 1

O | 2 | 3

--+---+--

4 | X | 6

--+---+--

7 | 8 | 9

Player X, enter your move (1-9): 1