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#include <stdio.h>
#include <stdlib.h>
#include <ctype.h>
#include <time.h>

char board[3][3];
const char PLAYER_X = 'X';
const char PLAYER_O = 'O';

void resetBoard()
{
    for (int i = 0; i < 3; i++)
        for (int j = 0; j < 3; j++)
            board[i][j] = ' ';
}

void printBoard()
{
    for (int i = 0; i < 3; i++)
    {
        for (int j = 0; j < 3; j++)
        {
            printf(" %c ", board[i][j]);
            if (j < 2)
                printf("|");
        }
        printf("\n");
        if (i < 2)
            printf("-----\n");
    }
    printf("\n");
}

int checkFreeSpaces()
{
    int freeSpaces = 9;
    for (int i = 0; i < 3; i++)
        for (int j = 0; j < 3; j++)
            if (board[i][j] != ' ')
                freeSpaces--;
    return freeSpaces;
}

int playerMove(char currentPlayer)
{
    int x, y;
    printf("Player %c, enter row and column (1-3): ", currentPlayer);
    scanf("%d %d", &x, &y);
    x--;
    y--;

    if (x < 0 || x >= 3 || y < 0 || y >= 3 || board[x][y] != ' ')
        return 0;

    board[x][y] = currentPlayer;
    return 1;
}

char checkWinner()

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{
    for (int i = 0; i < 3; i++)
        if (board[i][0] == board[i][1] && board[i][0] == board[i][2])
            return board[i][0];

    for (int j = 0; j < 3; j++)
        if (board[0][j] == board[1][j] && board[0][j] == board[2][j])
            return board[0][j];

    if (board[0][0] == board[1][1] && board[0][0] == board[2][2])
        return board[0][0];

    if (board[0][2] == board[1][1] && board[0][2] == board[2][0])
        return board[0][2];

    return ' ';
}

void updateLeaderboard(char winner)
{
    FILE *scoreFile = fopen("score.txt", "a");
    if (scoreFile != NULL)
    {
        fprintf(scoreFile, "%c\n", winner);
        fclose(scoreFile);
    }
}

void displayLeaderboard()
{
    FILE *scoreFile = fopen("score.txt", "r");
    if (scoreFile != NULL)
    {
        char winner;
        int count = 0;
        while (fscanf(scoreFile, " %c", &winner) != EOF)
        {
            count++;
            printf("Game %d: Winner - %c\n", count, winner);
        }
        fclose(scoreFile);
    }
}

int main()
{
    char winner;
    char response;

    do
    {
        resetBoard();

        while ((winner = checkWinner()) == ' ' && checkFreeSpaces() != 0)
        {
            printBoard();
            if (!playerMove(PYER_X))
                continue;
        }
    }
}

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        if ((winner = checkWinner()) != ' ' || checkFreeSpaces() == 0)
            break;

        printBoard();
        if (!playerMove(PYAYER_0))
            continue;
    }
    printBoard();

    printf(winner == PYAYER_X ? "Player X wins!\n" : winner == PYAYER_0 ?
"Player 0 wins!\n" : "It's a draw!\n");

    updateLeaderboard(winner);

    printf("Do you want to play again? (Y/N): ");
    scanf(" %c", &response);

} while (response == 'Y');

printf("\nLeaderboard:\n");
displayLeaderboard();

printf("Thanks for playing!\n");

return 0;
}

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