PROGRAMMING FUNDAMENTALS

SEMESTER PROJECT

TIC TAC TOE

PREPARED BY:

Amna Pervaz

Zainab Saleem

Tehreem Ejaz

InsaSaleem

MehmoonaAbid

PREPARED FOR:

Sir Adeel Khalid

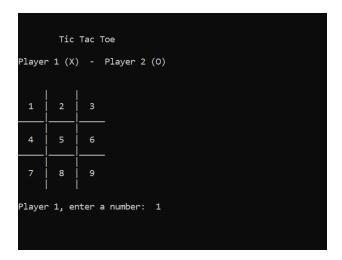**SOURCE CODE**

```c
#include <stdio.h>

#include<stdlib.h>

#include<process.h>

char square[10] = { '0', '1', '2', '3', '4', '5', '6', '7', '8', '9' };

int checkwin();

void board();

int main()

{

    int player = 1, i, choice;

    char mark;

    do

    {

        board();

        if (player % 2 == 1)

            player = 1;

        else

            player = 2;

        if (player == 1)

            mark = 'X';

        else

            mark = 'O';


        printf("Player %d, enter a number: ", player);

        scanf_s("%d", &choice);


        mark = (player == 1) ? 'X' : 'O';


        if (choice == 1 && square[1] == '1')
```

```c
            square[1] = mark;
        else if (choice == 2 && square[2] == '2')
            square[2] = mark;
        else if (choice == 3 && square[3] == '3')
            square[3] = mark;
        else if (choice == 4 && square[4] == '4')
            square[4] = mark;
        else if (choice == 5 && square[5] == '5')
            square[5] = mark;
        else if (choice == 6 && square[6] == '6')
            square[6] = mark;
        else if (choice == 7 && square[7] == '7')
            square[7] = mark;
        else if (choice == 8 && square[8] == '8')
            square[8] = mark;
        else if (choice == 9 && square[9] == '9')
            square[9] = mark;
        else
        {
            printf("Invalid move ");
            player--;
            getchar();
            getchar();
        }
        i = checkwin();
        player++;
    } while (i == -1);
    board();
    if (i == 1)
```

```c
        printf("==>Player %d wins\n", --player);
    else
        printf("==>Game draw\n");
    getchar();
    getchar();
    return 0;
}
/*****
    FUNCTION TO RETURN GAME STATUS
    1 FOR GAME IS OVER WITH RESULT
    -1 FOR GAME IS IN PROGRESS
    0 GAME IS OVER AND NO RESULT
******/
int checkwin()
{
    if (square[1] == square[2] && square[2] == square[3])
        return 1;
    else if (square[4] == square[5] && square[5] == square[6])
        return 1;
    else if (square[7] == square[8] && square[8] == square[9])
        return 1;
    else if (square[1] == square[4] && square[4] == square[7])
        return 1;
    else if (square[2] == square[5] && square[5] == square[8])
        return 1;
    else if (square[3] == square[6] && square[6] == square[9])
        return 1;
    else if (square[1] == square[5] && square[5] == square[9])
        return 1;
```

```c
    else if (square[3] == square[5] && square[5] == square[7])

        return 1;

    else if (square[1] != '1' && square[2] != '2' && square[3] != '3' &&

        square[4] != '4' && square[5] != '5' && square[6] != '6' &&

        square[7] != '7' && square[8] != '8' && square[9] != '9')

        return 0;

    else

        return -1;

}
/*********

    FUNCTION TO DRAW BOARD OF TIC TAC TOE WITH PLAYERS MARK

********/

void board()

{

    system("clear"); // For Linux, use "clear"; for Windows, use "cls"

    printf("\n\n\tTic Tac Toe\n\n");

    printf("Player 1 (X)  -  Player 2 (O)\n\n");

    printf("\n");

    printf("     |     |     \n");

    printf("  %c  |  %c  |  %c  \n", square[1], square[2], square[3]);

    printf("_||__\n");

    printf("     |     |     \n");

    printf("  %c  |  %c  |  %c  \n", square[4], square[5], square[6]);

    printf("_||__\n");

    printf("     |     |     \n");

    printf("  %c  |  %c  |  %c  \n", square[7], square[8], square[9]);

    printf("     |     |     \n\n");

}
```

Console Output:

```
        Tic Tac Toe

Player 1 (X)  -  Player 2 (O)


    |   |
 1  | 2 | 3
____|___|____
    |   |
 4  | 5 | 6
____|___|____
    |   |
 7  | 8 | 9
    |   |

Player 1, enter a number:  1
```

As the user enters 1, the mark will be placed at 1st position. And then it asks the 2nd player to take their turn.
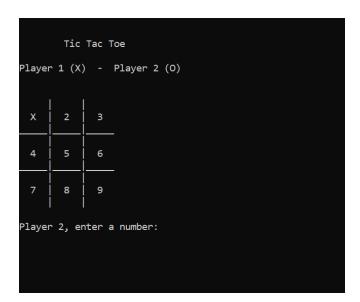
```
        Tic Tac Toe

Player 1 (X)  -  Player 2 (O)


    |   |
 X  | 2 | 3
____|___|____
    |   |
 4  | 5 | 6
____|___|____
    |   |
 7  | 8 | 9
    |   |

Player 2, enter a number:
```

```
        Tic Tac Toe

Player 1 (X)  -  Player 2 (O)


     |     |
  X  |  2  |  3
_____|_____|_____
     |     |
  4  |  O  |  6
_____|_____|_____
     |     |
  7  |  8  |  9
     |     |

Player 1, enter a number:
```

```
        Tic Tac Toe

Player 1 (X)  -  Player 2 (O)


     |     |
  X  |  O  |  3
_____|_____|_____
     |     |
  X  |  O  |  6
_____|_____|_____
     |     |
  X  |  8  |  9
     |     |

==>Player 1 win
```

Figure here the player 1 wins.

```
        Tic Tac Toe

Player 1 (X)  -  Player 2 (O)


     |     |
  X  |  X  |  O
_____|_____|_____
     |     |
  X  |  X  |  6
_____|_____|_____
     |     |
  O  |  O  |  O
     |     |

==>Player 2 win
```

Figure here the player 2 wins.

```
        Tic Tac Toe

Player 1 (X)  -  Player 2 (O)


      |     |
  X   |  O  |  X
_____|_____|_____
      |     |
  X   |  O  |  X
_____|_____|_____
      |     |
  O   |  X  |  O
      |     |

==>Game draw
```

Figure Here the game is draw