



# PROGRAMMING FUNDAMENTALS

SEMESTER PROJECT

TIC  
TAC  
TOE

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## SOURCE CODE

```
#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')
```

```
    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)
```

```

        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;
}

```

```

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 | 0 | 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*