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Project - 7: TIC TAC TOE GAME

The Functionality of the Tic-Tac-Toe game are mentioned below:

The game is to be played between two people.

One of the players chooses 'O' and the other 'X' to mark their respective cells.

The game starts with one of the players and the game ends when one of the players has one

whole row/ column/ diagonal filled with his/her respective character ('O' or 'X').

If no one wins, then the game is said to be drawn.

Introduction:

The implementation of a Tic Tac Toe program in the C programming language serves as an excellent exercise for understanding fundamental programming concepts.

Design:

The program includes the steps like board initiating, board display, player's entry, winner checking, etc.

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Implementation Highlights:

- It includes the usage of arrays and loops for storing and manipulating the player's choices in each step.
- Functions are designed for easy understanding and simple modification purposes.
- Conditional Statements help in each and every move ,thereby making it easy to program the marking of player and in declaring the winner.

Conclusion:

The development of a Tic Tac Toe program in C provides a hands-on experience in applying programming fundamentals. The modular design, input validation, and game flow management contribute to a functional and user-friendly game. This project serves as an educational tool for novice programmers to grasp essential concepts and refine their problem-solving skills.

SOURCE CODE :::

```
#include<stdio.h>
char box[10] = {'0', '1', '2', '3', '4', '5', '6', '7', '8', '9'};
void board();
int winner(char mark);
int entry(int player , int choice);
int main()
{
    int choice ,status ,player = 1;
    char mark;
    do
    {
        board();
        player = (player%2==1)? 1:2;
        printf("Player %d ,select a box:  ",player);
        scanf("%d",&choice);
        entry(player ,choice);
        status = winner(mark);
        player++;
    }while(status==0);
    board();
    if(status==1)
    {
        printf("Congratulations!!!\aPlayer %d wins!!!\n",--player);
    }
    else
    {
        printf("\aTIE!!!\n");
    }
    /*'\a' provides an alarm flash or sound*/
}
```

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```
        return 0;
    }
    /*Function to mark the boxes according to player*/
    int entry(int player ,int choice)
    {
        char mark;
        mark = (player==1)? 'X':'0';
        if(choice == 1 && box[1] == '1')
        {
            box[1] = mark;
        }
        else if(choice == 2 && box[2] == '2')
        {
            box[2] = mark;
        }
        else if(choice == 3 && box[3] == '3')
        {
            box[3] = mark;
        }
        else if(choice == 4 && box[4] == '4')
        {
            box[4] = mark;
        }
        else if(choice == 5 && box[5] == '5')
        {
            box[5] = mark;
        }
        else if(choice == 6 && box[6] == '6')
        {
            box[6] = mark;
        }
        else if(choice == 7 && box[7] == '7')
        {
            box[7] = mark;
        }
        else if(choice == 8 && box[8] == '8')
        {
            box[8] = mark;
        }
        else if(choice == 9 && box[9] == '9')
        {
            box[9] = mark;
        }
        else
        {
            printf("Invalid Move\n");
            player--;
        }
        return 0;
    }
    /*Function to check the status and winner of the game*/
```


OUTPUT:::

```
shanmukhimudundi@Shanmukhis-MacBook-Pro ~ % vim activity.c
shanmukhimudundi@Shanmukhis-MacBook-Pro ~ % gcc activity.c
shanmukhimudundi@Shanmukhis-MacBook-Pro ~ % ./a.out
```

TIC TAC TOE

Player 1 (X) ::: Player 2 (O)

| | | |
|---|---|---|
| 1 | 2 | 3 |
| 4 | 5 | 6 |
| 7 | 8 | 9 |

Player 1,select a box: 4

TIC TAC TOE

Player 1 (X) ::: Player 2 (O)

| | | |
|---|---|---|
| 1 | 2 | 3 |
| X | 5 | 6 |
| 7 | 8 | 9 |

Player 2,select a box: 6

TIC TAC TOE

Player 1 (X) ::: Player 2 (O)

| | | |
|---|---|---|
| 1 | 2 | 3 |
| X | 5 | O |
| 7 | 8 | 9 |

Player 1,select a box: 2

TIC TAC TOE

Player 1 (X) ::: Player 2 (O)

| | | |
|---|---|---|
| 1 | X | 3 |
| X | 5 | O |
| 7 | 8 | 9 |

Player 2,select a box: 5

TIC TAC TOE

Player 1 (X) ::: Player 2 (O)

| | | |
|---|---|---|
| 1 | X | 3 |
| X | O | O |
| 7 | 8 | 9 |

Player 1,select a box: 3

TIC TAC TOE

Player 1 (X) ::: Player 2 (O)

| | | |
|---|---|---|
| 1 | X | X |
| X | O | O |
| 7 | 8 | 9 |

Player 2,select a box: 1

TIC TAC TOE

Player 1 (X) ::: Player 2 (O)

| | | |
|---|---|---|
| O | X | X |
| X | O | O |
| 7 | 8 | 9 |

Player 1,select a box: 7

TIC TAC TOE

Player 1 (X) ::: Player 2 (O)

| | | |
|---|---|---|
| O | X | X |
| X | O | O |
| X | 8 | 9 |

```
Player 2,select a box:  9

      TIC TAC TOE

Player 1 (X) ::: Player 2 (O)

      0 | X | X
-----|---|---
      X | O | O
-----|---|---
      X | 8 | O

Congratulations!!!Player 2 wins!!!
```

—THANK YOU—
