TIC-TAC-TOE GAME

Submitted By:

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Subject: **Programming for Problem Solving using C**

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Under the supervision of:

Prof. Swarnendu Ghosh

(PROJECT REPORT SUBMITTED IN FULFILLMENT OF THE REQUIREMENTS FOR THE SECOND SEMESTER)

CERTIFICATE OFRECOMMENDATION

We hereby recommend that the project under our supervision by **Ankesh Kumar,** entitled **Tic-Tac-Toe Game** be accepted in partial fulfillment of the requirements for the degree of partial fulfillment of the second semester.

Head of the Department
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Project Supervisor

Introduction:

Tic Tac Toe is a game in which two players pick X's or O's alternately in a matrix cell formed by two vertical and horizontal lines crossing each other. Each player tries to place three of their marks in a horizontal, vertical, or diagonal row. The player who put in this form will succeed in the game. If both the players fail to do this game ends up in a draw.

Objective:

To win at a game of Tic-Tac-Toe, players need to focus or concentrate for a few moments at a time. This practice at focus and concentration can help to develop these skills. This is a great skill to have in all areas of life. We have to use 2D array to store the player sign. The 2D array will be initially empty that means every cell contains space character. On every move of the player, the cell will be filled by its input position. We will build this program using C programming language in which we use a 2D array to store the cell position and update on every move.

Variable and Function Description Table:

Variable Name	Data Type	Description
player	Int	Determines the chance of player 1 and player 2.
input	Int	Takes the Input from players.
Status	Int	Maintains the status in the game.
mark	char	Prints 'X' or 'O' on the board.
board[]	Int	Stores the precedent value of mark.

result	Int	Storesthe value that define the result of the game.
count	Int	Counts the number of inputs from the players.
i	Int	Used in the for loop to check the valid number of inputs from the players.

Function Name	**Description**
main()	The main function that runs the program and calls other functions.
printBoard()	Displays the lines of the board.
checkwin()	Takes the input of 'X' and 'O' in the significant place.
system()	Displays the name above the board everytime.

Code:

```c
#include <stdio.h>
#include <conio.h>

void printBoard();
int checkWin();
void system();

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

void main(){
    int player=1,input,status=-1;
    printBoard();


    while (status==-1)
    {
        player=(player%2==0) ? 2 : 1;
        char mark=(player==1) ? 'X' :'O';
        printf("Please enter Number For Player
            %d\n",player);
        scanf("%d",&input);
    if(input<1 || input>9){
        printf("invalid input");
    }

    board[input]=mark;
    printBoard();

    int result=checkWin();

    if(result==1){
        printf("Player %d is the Winner"
            ,player);
        return;
    }else if(result==0){
        printf("draw");
        return;
    }

    player++;
    }


}

void printBoard(){
    system("cls");
    printf("\n\n");
    printf("=== TIC TAC TOE ===\n\n");
    printf("     |     |     \n");
    printf("  %c  |  %c  |  %c  \n",board[1]
        ,board[2],board[3]);
    printf("_____|_____|_____\n");
    printf("     |     |     \n");
    printf("  %c  |  %c  |  %c  \n",board[4]
        ,board[5],board[6]);
    printf("_____|_____|_____\n");
    printf("     |     |     \n");
    printf("  %c  |  %c  |  %c  \n",board[7]
        ,board[8],board[9]);
    printf("     |     |     \n");
    printf("\n\n");
}


int checkWin(){

    if(board[1]==board[2] && board[2]
        ==board[3]){
        return 1;
    }
    if(board[1]==board[4] && board[4]
        ==board[7]){
        return 1;
    }
    if(board[7]==board[8] && board[8]
        ==board[9]){
        return 1;
    }
    if(board[3]==board[6] && board[6]
        ==board[9]){
        return 1;
    }
    if(board[1]==board[5] && board[5]
        ==board[9]){
        return 1;
    }
    if(board[3]==board[5] && board[5]
        ==board[7]){
        return 1;
    }
    if(board[2]==board[5] && board[5]
        ==board[8]){
        return 1;
    }
    if(board[4]==board[5] && board[5]
        ==board[6]){
        return 1;
    }

    int count=0;
    for (int i = 1; i <=9; i++)
    {
        if(board[i]=='X' || board[i]
            =='O'){
            count++;
        }
    }

    if(count==9){
        return 0;
    }
    return -1;
}
```

Run

Output:

```
=== TIC TAC TOE ===

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


Please enter Number For Player 1
5
sh: 1: cls: not found
=== TIC TAC TOE ===

     |     |
  1  |  2  |  3
_____|_____|_____
     |     |
  4  |  X  |  6
_____|_____|_____
     |     |
  7  |  8  |  9
     |     |


Please enter Number For Player 2
2
sh: 1: cls: not found
=== TIC TAC TOE ===

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


Please enter Number For Player 1
7
sh: 1: cls: not found
=== TIC TAC TOE ===

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


Please enter Number For Player 2
3
sh: 1: cls: not found=== TIC TAC TOE ===

     |     |
  1  |  O  |  O
_____|_____|_____
     |     |
  4  |  X  |  6
_____|_____|_____
     |     |
  X  |  8  |  9
     |     |
```

```
Please enter Number For Player 1
1
sh: 1: cls: not found
=== TIC TAC TOE ===

     |     |
  X  |  O  |  O
_____|_____|_____
     |     |
  4  |  X  |  6
_____|_____|_____
     |     |
  X  |  8  |  9
     |     |


Please enter Number For Player 2
9
sh: 1: cls: not found
=== TIC TAC TOE ===

     |     |
  X  |  O  |  O
_____|_____|_____
     |     |
  4  |  X  |  6
_____|_____|_____
     |     |
  X  |  8  |  O
     |     |


Please enter Number For Player 1
4
sh: 1: cls: not found
=== TIC TAC TOE ===

     |     |
  X  |  O  |  O
_____|_____|_____
     |     |
  X  |  X  |  6
_____|_____|_____
     |     |
  X  |  8  |  O
     |     |


Player 1 is the Winner
```