Tic tac toe game

A Mini Project

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Abstract for Tic Tac Toe Game project:

Tic-Tac-Toe game can be played by two players where the square block (3 x 3) can be filled with a cross (X) or a circle (O). The game will toggle between the players by giving the chance for each player to mark their move. When one of the players make a combination of 3 same markers in a horizontal, vertical or diagonal line the program will display which player has won, whether X or O. In this program, we implement a 3x3 tic-tac-toe game. The game is designed so that two players can play tic-tac-toe using C-language. The program will contain a display function and a select function to place the symbol as well as toggle between the symbols allowing each player a turn to play the game. The program will update after each player makes their move and check for the conditions of game as it goes on. Overall program works without any bugs and is able to use

Algorithm

Tic-Tac-Toe is a two player game where each player uses a signature. The player who successfully places three respective signatures in a vertical, horizontal or diagonal row is the winner.

Step 1: Start

Step 2: Use 3 X 3 matrix to get 9 cell tic tac toe board.

Step 3: Signature 'X' is used for player 1 and 'Y' for player 2. And the players play alternatively.

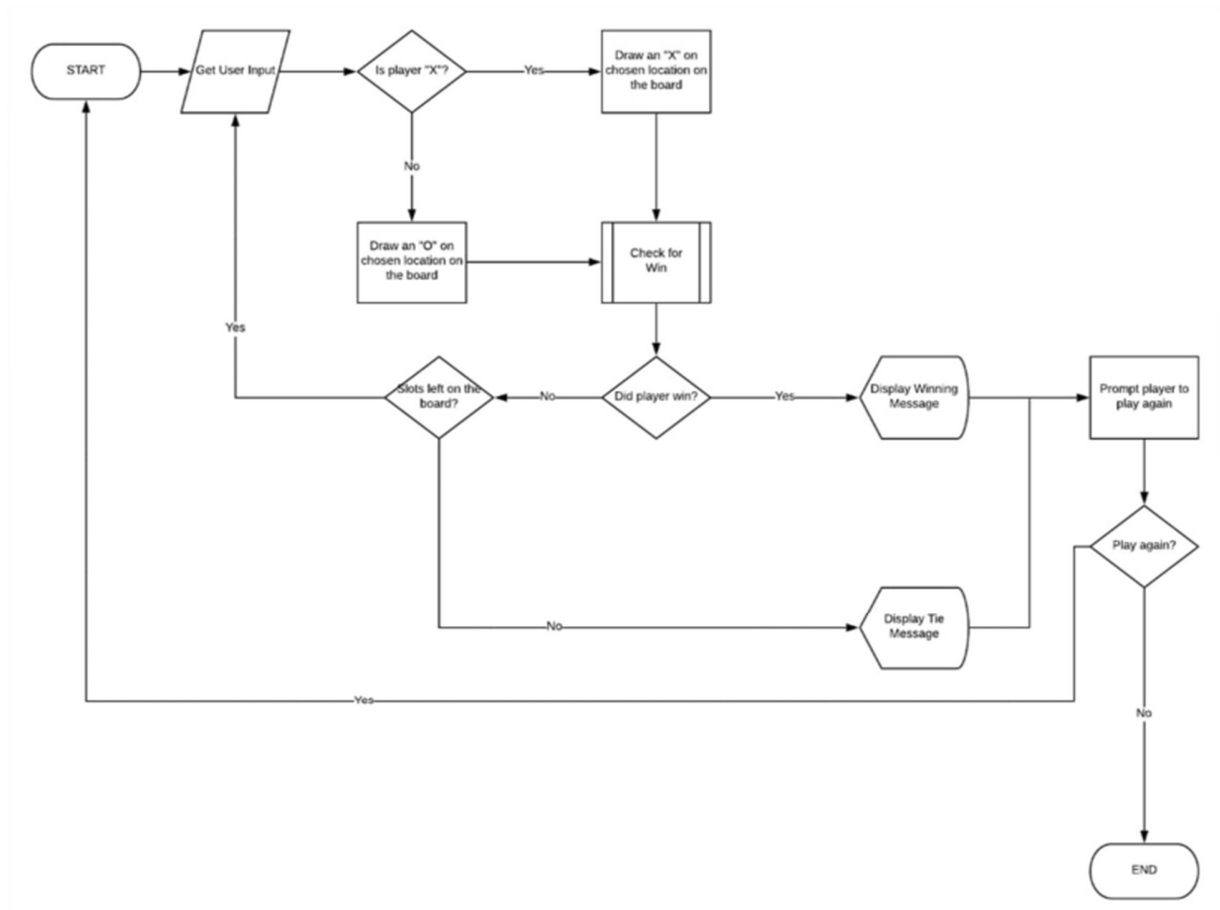**Step 4:** Get index as input from the players. And the index range is from cell 1 to cell 9.

Step 5: After each move, check whether that player has placed three respective signatures in vertical, horizontal or diagonal row. If yes, declare that particular player as winner.

Step 6: If no, give chance for other player.

Step 7: If all the cells in the Tic-Tac-Toe board got filled, then the game is drawn.

Step 8: End

Flowchart

START → Get User Input → Is player "X"?

Is player "X"? —Yes→ Draw an "X" on chosen location on the board

Is player "X"? —No→ Draw an "O" on chosen location on the board

Draw an "O" on chosen location on the board → Check for Win

Draw an "X" on chosen location on the board → Check for Win

Check for Win → Did player win?

Did player win? —No→ Slots left on the board?

Did player win? —Yes→ Display Winning Message

Slots left on the board? —Yes→ Get User Input

Slots left on the board? —No→ Display Tie Message

Display Winning Message → Prompt player to play again

Display Tie Message → Prompt player to play again

Prompt player to play again → Play again?

Play again? —Yes→ START

Play again? —No→ END

Source Code

```c
#include <stdio.h>

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

int checkwin();
void board();

int main()
{

printf("***********************************************************************
*********************************************************\n");

  printf("\t\t\t\t\t\tWELCOME\n");
printf("\t\t\t\t\t\t   TIC TAC TOE GAME\n");
printf("\t\t\t\t\t\tDone by-'RA2111026010282' AND 'RA2111026010283'\n");

printf("***********************************************************************
*********************************************************\n");


   int player = 1, i, choice;

   char mark;
   do
   {
     board();
     player = (player % 2) ? 1 : 2;

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

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

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

```c
        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--;
          getch();
        }
      i = checkwin();

      player++;
    }while (i ==  - 1);

    board();
```

```c
    if (i == 1)
        printf("==>\aPlayer %d win ", --player);
    else
        printf("==>\aGame draw");

    getch();

    return 0;
}
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')
```

```c
        return 0;
    else
        return - 1;
}
void board()
{

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

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

}
```

Screenshots

```
****************************************************************************************
                                    WELCOME
                                 TIC TAC TOE GAME
                            Done by-'RA2111026010282' AND 'RA2111026010283'
****************************************************************************************


        Tic Tac Toe

Player 1 (X)  -  Player 2 (O)


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

```
Player 1, enter a number:  1


           Tic Tac Toe

Player 1 (X)  -  Player 2 (O)



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

```
Player 2, enter a number:  2


        Tic Tac Toe

Player 1 (X)  -  Player 2 (O)


      |     |
   X  |  O  |  3
_____|_____|_____
      |     |
   4  |  5  |  6
_____|_____|_____
      |     |
   7  |  8  |  9
      |     |
```

```
Player 1, enter a number:  4


        Tic Tac Toe

Player 1 (X)  -  Player 2 (O)


      |     |
   X  |  O  |  3
_____|_____|_____
      |     |
   X  |  5  |  6
_____|_____|_____
      |     |
   7  |  8  |  9
      |     |
```

```
Player 2, enter a number:  5


        Tic Tac Toe

Player 1 (X)  -  Player 2 (O)



      |     |
   X  |  O  |  3
_____|_____|_____
      |     |
   X  |  O  |  6
_____|_____|_____
      |     |
   7  |  8  |  9
      |     |
```

```
Player 1, enter a number:  7


        Tic Tac Toe

Player 1 (X)  -  Player 2 (O)



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

==>Player 1 win

...Program finished with exit code 0
Press ENTER to exit console.
```

Result:

The Tic Tac Toe game is most familiar among all the age groups. Intelligence can be a property of any purpose-driven decision maker. This basic idea has been suggested many times. An algorithm of playing Tic Tac Toe has been presented and tested that works in efficient way. Overall, the system works without any bugs.

Conclusion:

We make Tic Tac Toe game successfully with the help of C language and it is very entertaining.