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UNIVERSITY INSTITUTE OF COMPUTING

Title -: Tic Tac Toe Game in C Language

Course -: Bachelor of Computer Application

Subject -: Computer Programming (25CAH-101)

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ABSTRACT

Introduction:

The Tic Tac Toe game is a classic two-player game where players take turns marking their respective symbols (X or O) on a 3×3 grid. The primary aim is to form a horizontal, vertical, or diagonal line of three identical symbols. This project demonstrates the implementation of Tic Tac Toe using the C programming language. It provides an understanding of arrays, loops, conditional statements, and function usage in C.
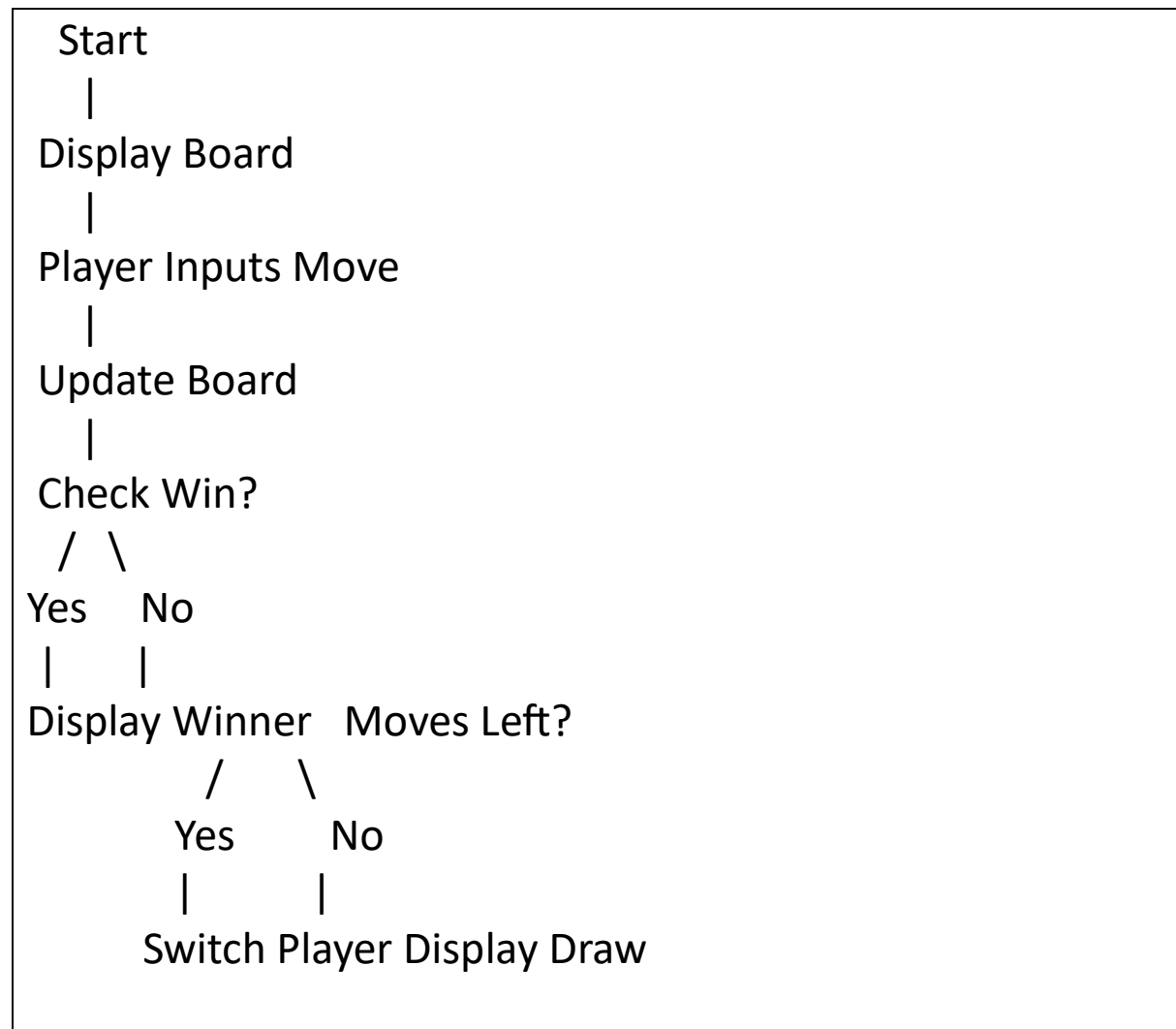
Objective:

- To implement a two-player Tic Tac Toe game in C.

- To understand the use of 2D arrays for storing board values.

- To apply functions for modular program design.

- To learn decision-making and game condition checking in C.

System Design:

Game Logic

- The game board is represented as a 3×3 matrix.

- Players alternate turns, entering a number (1-9) representing board positions.

- After each move, the program checks for a winner.

- If all 9 moves are done and no player wins, the match is declared a draw.

Flowchart:

```
   Start
     |
 Display Board
     |
 Player Inputs Move
     |
 Update Board
     |
 Check Win?
   /  \
Yes    No
 |     |
Display Winner   Moves Left?
             /      \
         Yes        No
          |          |
      Switch Player Display Draw
```

Output:

X | O | 3

---|---|---

 4 | X | 6

---|---|---

 7 | 8 | O

Player X WINS!

Conclusion:

This project successfully implements the Tic Tac Toe game in C. It helped in understanding key programming concepts such as loops, arrays, switch logic, and function decomposition. It also improved logical thinking and problem-solving skills.

Learning Outcomes:

- Learned to design and handle 2D arrays.

- Developed logic for win/draw decision-making.

- Improved understanding of function-based programming.

- Gained better command over C syntax and debugging.