Project Proposal – Complex Computing Problem (CCP)

Course: Programming Fundamentals
Project Type: Complex Computing Problem (CCP)
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1. Project Title

Tic Tac Toe Game – Human vs Human

2. Problem Statement

Tic Tac Toe, though a simple and traditional game, is one of the most popular ways to test logical reasoning and strategic thinking in a fun, competitive setting.

The problem is to design and develop a digital Tic Tac Toe game that provides an engaging and user-friendly interface, supports smooth alternate turns between two players, and guarantees unbiased gameplay. The system must be capable of detecting winning conditions or draws automatically, announcing results clearly, and resetting the game for replay.

This project not only recreates the nostalgic charm of Tic Tac Toe but also demonstrates how fundamental programming concepts such as loops, conditional statements, arrays, and user input validation can be combined to create a complete interactive application.

3. Objectives

- To implement a working Tic Tac Toe game.
- To provide Human vs Human mode.
- To apply programming fundamentals (loops, conditions, arrays, functions).
- To strengthen problem-solving and logical thinking.

4. Proposed Solution

We will create a Tic Tac Toe game using a 3x3 grid. The program will allow only one mode:
Human vs Human – Two players take turns.
The winner will be determined when a player aligns 3 marks in a row, column, or diagonal.
Coordinates will be used for the marking on the grid.
The user interface will be command line based.
X&O will be symbols used to mark those two players.

5. Tools & Technologies

- Programming Language: C-lang
- Concepts: Arrays, Functions, Loops, Conditional Statements
- Version Control: Git & GitHub
- Editor: Embarcadero Dev-C++

6. Expected Outcomes

- A functional Tic Tac Toe game with one mode.
- Enhanced programming fundamentals understanding.
- A demonstration of logic building and decision-making in games.

7. Timeline (Tentative)

Week	Task
1	Research and requirement gathering
2	Game design (grid, rules, logic)
3-4	Implementation of Human vs Human mode
6	Testing and debugging
7	Final submission and documentation