TOPIC:-TIC TAC TOE GAME

<u>SYNOPSIS</u>

"Tic Tac Toe" is a classic two-player turn-based strategy game, designed in Java, where players compete on a 3x3 grid to align their symbols (X or O) in a row, column, or diagonal. The game is a digital adaptation of the timeless Tic-Tac-Toe (also known as Noughts and Crosses), aimed at providing an engaging and simple-to-understand experience for players of all ages.

Key Features:

Player Modes:

Player vs. Player (PvP): Two players take turns on the same device.

Player vs. AI: A single player competes against a computer opponent with adjustable difficulty levels.

Game Mechanics:

The game starts with an empty 3x3 grid.

Players choose their symbols (X or O) and take turns placing their symbol in an empty cell.

The objective is to be the first to place three of their symbols in a horizontal, vertical, or diagonal line.

AI Difficulty Levels:

Easy: The AI makes random moves.

Medium: The AI makes more strategic moves but can be beaten.

Hard: The AI uses advanced algorithms like Minimax to maximize its chances of winning.

User Interface:

A simple and intuitive graphical user interface (GUI) using Java Swing, allowing players to interact easily with the game.

Visual indicators for turns, wins, and draws.

Option to restart the game or change settings.

Additional Features:

Sound effects for moves, wins, and draws.

Scoring system to track wins, losses, and draws.

Options menu for customizing player names, choosing symbols, and setting AI difficulty.

Technical Details:

Language: Java

Libraries: Java Swing for GUI, Java AWT for basic drawing.

Design Patterns: MVC (Model-View-Controller) for game logic and UI separation, Singleton for AI instance management.

Target Audience:

The game is suitable for all ages, especially those who enjoy casual puzzle games. It's designed to be a quick, fun, and intellectually stimulating experience, perfect for passing the time or challenging friends and family.

Conclusion:

"Tic Tac Toe" is a simple yet engaging project that introduces players to basic strategic thinking and planning. It also serves as an excellent project for learning Java programming, particularly in GUI design, AI implementation, and game development fundamentals.