

TIC TAC GAME LLD

Conditions for the game :

1. A 3 x 3 Grid
2. Two players take turn by placing either 'X' or 'O' on the vacant cell of the grid.
3. Game continues till :
 1. If a player matches the symbol in a row (horizontal , vertical , diagonal) -> WIN
 2. If all the cells are filled and no one is able to make a row of same symbol -> DRAW

Key Components for the design :

1. Symbol (X,O,Empty) : Can define as a enum with symbols of x , o , empty.
2. Board (3x3 Grid) :
3. Player (2 players) :

Design Challenges :

1. Managing Game State
2. Implementing Move Validation
3. Tracking Player Turns
4. Detecting Game Ending Conditions

Approach :

1. Strategy Pattern for Player Interactions
2. State Pattern for Game flow management
3. Observer Pattern for Game Event Tracking
4. Factory Pattern for Player/Symbol Creation

Design :

