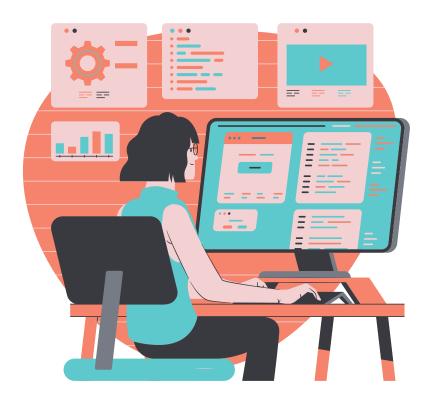
Chaf demo TIC.TAC.TOE

By Sakshi Grover

ingouing ABOUT/ME

- Software Engineer at Deutsche Bank
- Currently in the asset management department, working on a passive investment platform
- Dealing and beautifying data with Microservices based backend architecture and intuitive UI
- Part of CSR and volunteering groups
- Love reading and active gym enthusiast, always on the move

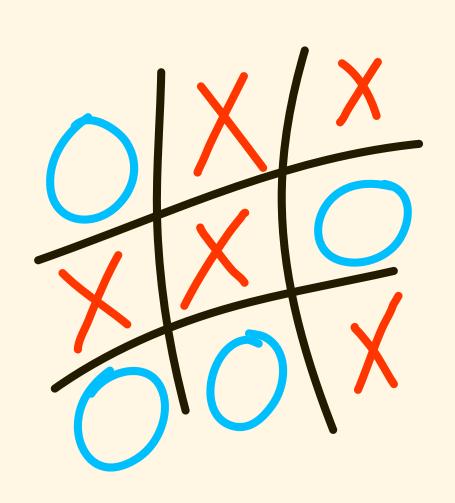






Sakshi Grover Software Engineer

PROBLEM STATEMENT



Tic-tac-toe (American English), noughts and crosses (Commonwealth English), or Xs and Os (Canadian or Irish English) is a paper-and-pencil game for two players who take turns marking the spaces in a three-by-three grid with X or O. The player who succeeds in placing three of their marks in a horizontal, vertical, or diagonal row is the winner. It is a solved game, with a forced draw assuming best play from both players.

Design and develop a system which can play this game against a human.

The system should be able to:

- 1. Start as a console application
- 2. Take inputs from the console
- 3. Conduct a toss when the game starts and proceed based on the winner of the toss.
- 4. Should show the winner if somebody wins the game.

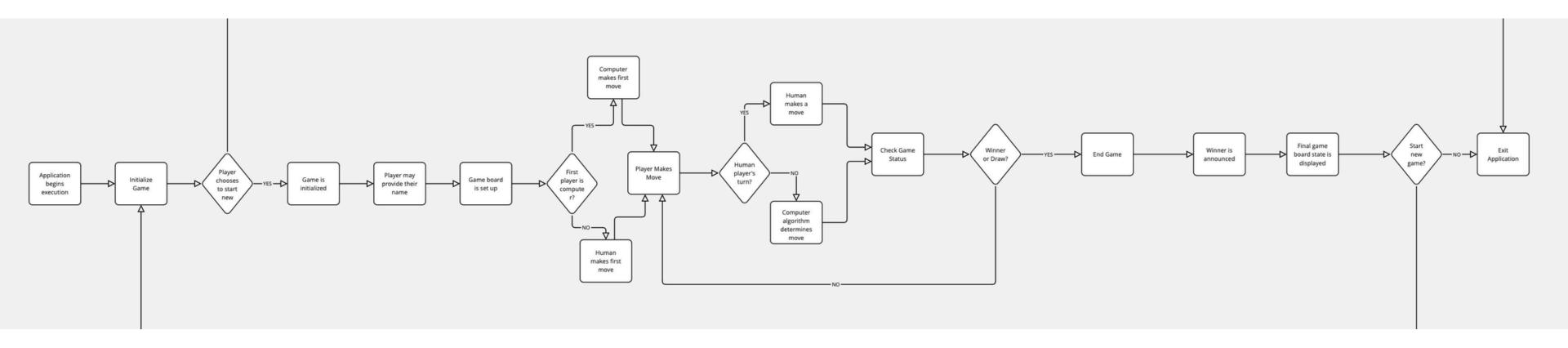
DO NOT use an AI/ML model to decide the next best move for the system player. Come up with a rule/search based algorithm for the same.

Ensure the code is clean, modular, extensible. Follow object oriented principles and design patterns wherever applicable.

ASSUMPTIONS

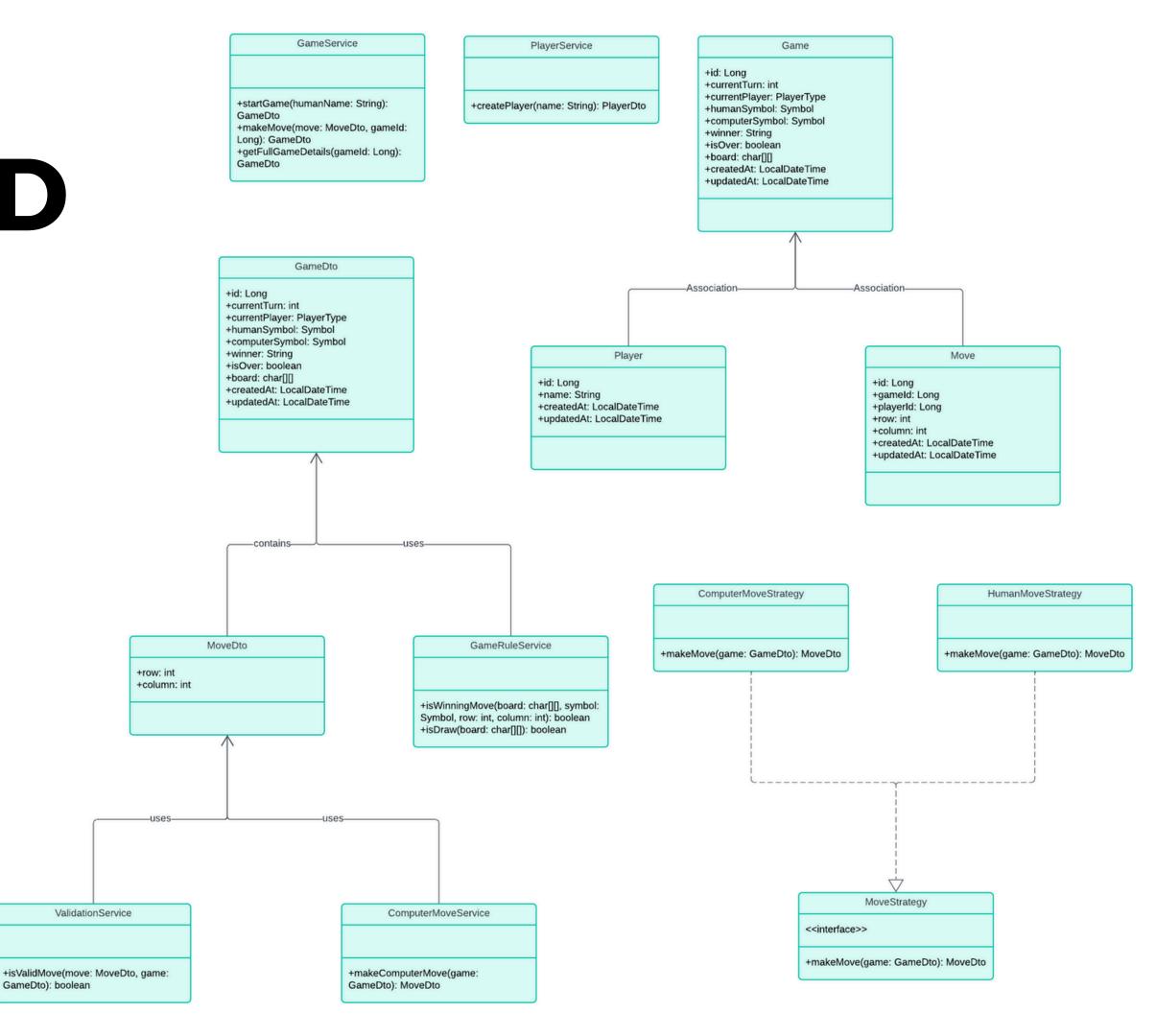
- SINGLE PLAYER VS COMPUTER
- 3X3 BOARD
- STANDARD TIC-TAC-TOE RULES
- VALID INTEGERS(1-9)
- RANDOM START PLAYER

FLOWCHART

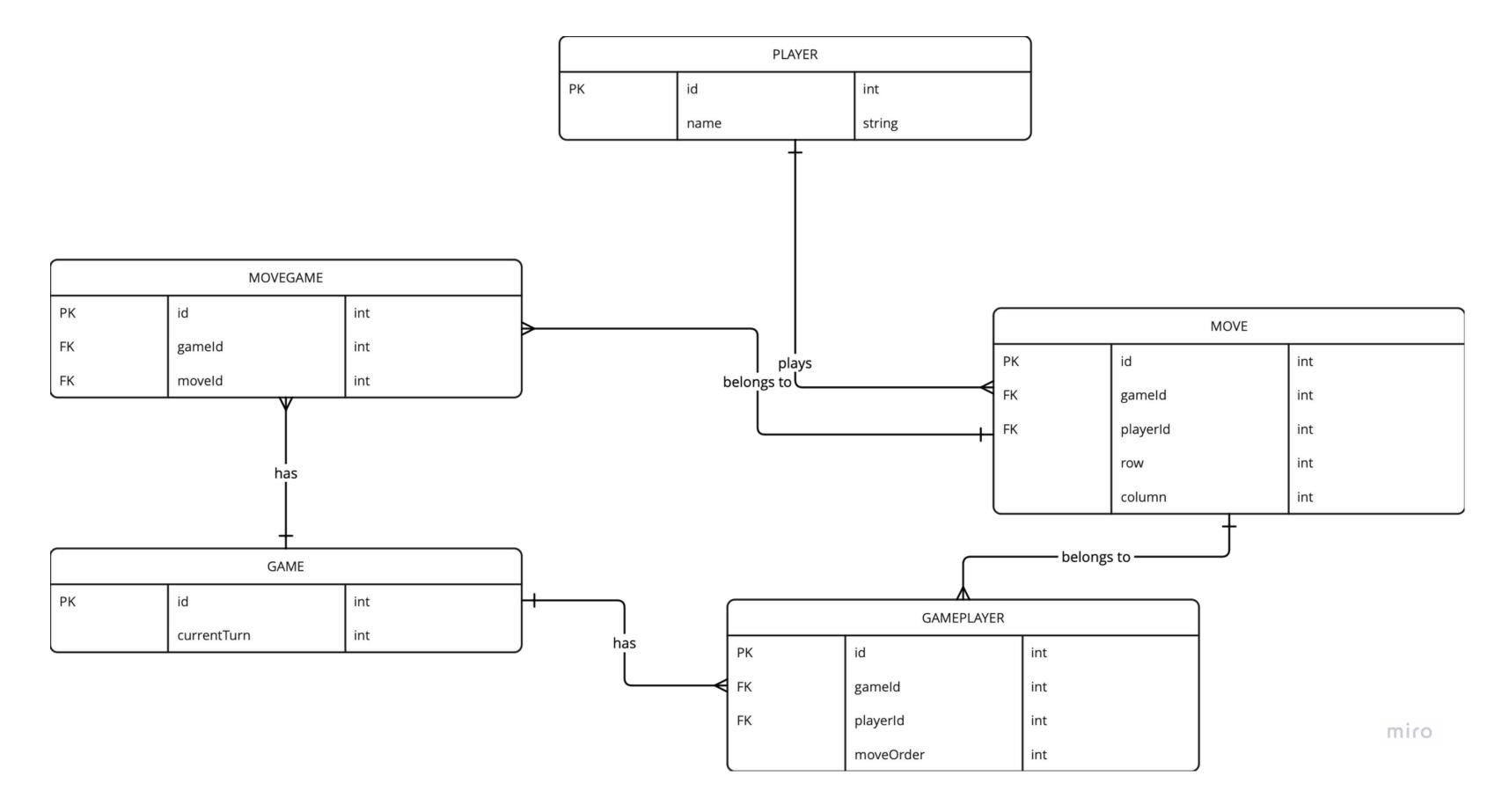


CLASS DIAGRAM/LLD

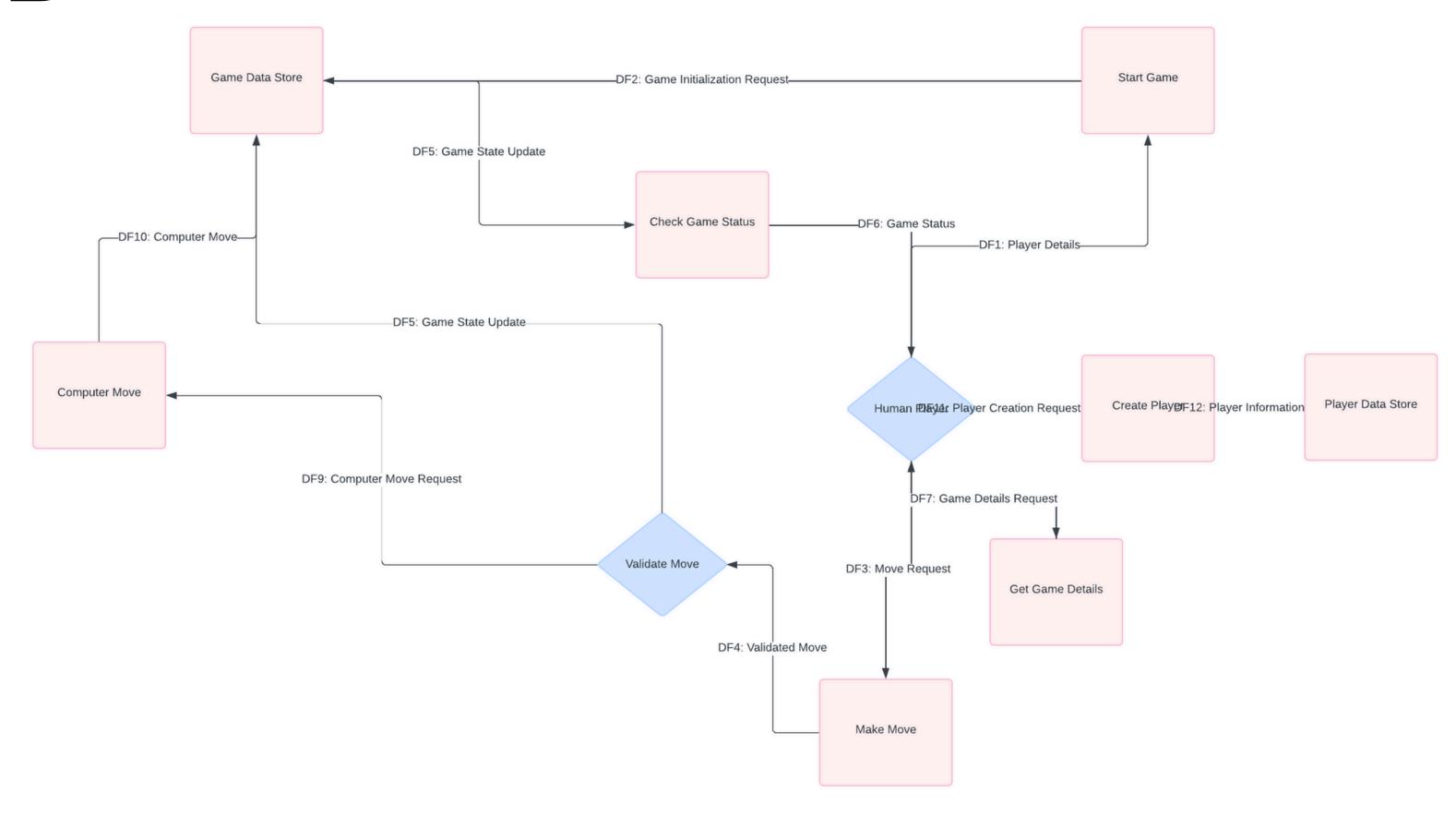
GameDto): boolean



ER DIAGRAM



DFD



LAYERS

Controllers:

GameController

Service Layers:

- GameService
- PlayerService
- ValidationService
- GameLogicService
- ComputerMoveService

DAOs:

- GameDao
- PlayerDao
- MoveDao

Repository:

- GameRepository
- PlayerRepository
- MoveRepository

FUTURE SCOPE

nxn board size, multiple symbols

Leaderboard

Play over network, multiplayer

Login and session management

Game statistics and sharing

chat rooms, community

THANK YOU