DESIGN DOCUMENT TEMPLATE

PROJECT GAME DESIGN

SECTION I: First Iteration Game Project Design [Till Phase III Submitted Upto 29th January, 2020]

PART I:
Sequence Diagram :
https://github.com/RenukuntlaMonisha/FKApplyDesign/blob/Dev/sequenceDiagram.pdf

Class Diagram :
https://github.com/RenukuntlaMonisha/FKApplyDesign/blob/Dev/classDiagram.pdf

PART II : Common Design/Choices and Conventions/Assumptions and Detailed Descriptions etc.

1. I thought of designing the v1.0 of tic tac toe with interface to implement the human play function and computer play function.
2. The tictactoe is limited to two players.
3. The users can play tic tac toe any number of times.
4. The board size will be taken by the user.
5. The decision to play human vs human or human vs computer will also be taken by user by providing the input.
6. The decision to play normal tic tac toe or hexagonal tic tac toe is also taken by user.
7. Human vs Human game
8. Human vs Computer game
9. Normal 3 * 3 or 4 * 4 tic tac toe game
10. Enhanced tic tac toe game (board size to be multiple of 3 like 9 * 9 and so on)
11. Players can go multiple level in enhanced tic tac toe game

12. Super titactoe game with regular hexagonal board
13. And final scores

PART III : Feature Specific Design/Choices and Conventions/Assumptions

GameDesign v2.0 - Requirement I

<COMPLETED> - 1. Tic-Tac-Toe consists of 3x3 Square Cells
Grid Size is fixed so used a 2-D Array.

<COMPLETED> - 2. Game Between Two Humans
Used Dequeue to carry all players.

<COMPLETED> - 3. Game Between Human and Machine
For Machine I have made a function which will make a optimal move.

<COMPLETED> - 4. Winning Criteria - 3 Cells in Row/Column/Diagonal are in Same state
Just Simple Implementation.

<COMPLETED> - 5. Announce Winning Player
Just Simple Implementation.

GameDesign v2.0 - Requirement II

<COMPLETED> - 6. Enhanced Tic-Tac-Toe Game Consist of 9x9 Squares...
Made a function which can be extended in future.

<COMPLETED> - 7. Enhanced Tic-Tac-Toe will continue to expand in depth levels...
Made a function which can be extended in future.

<COMPLETED> - 8. Extend Game to 4x4 Board
Already Implemented Variable size Grid.

<COMPLETED> - 9. Human Player is Biased...
By Cloning the current Grid.

<COMPLETED> - 10. Storing and Retrieving Game State
Stack Implementation

<COMPLETED> - 11. Store Players Game Statistics: Leaderboard
Class Leaderboard will be sufficient.

GameDesign v3.0 - Requirement III

<COMPLETED> - 12. Super Tic-Tac-Toe Game Extends Enhanced Tic-Tac-Toe Game...
Extended the previous classes to implement enhanced tic tac toe

<COMPLETED> - 13. Design Winning and Losing Criterias On All Edges...
Checkwin function for super tic tac toe checks the condition by further calling the

check functions on row and the tow diagonals

<NOT COMPLETED> - 14. Incorporate Irregular shaped Hexagonal Boards

GameDesign v4.0 - Requirement IV

<NOT COMPLETED> - 15. Incorporate Biased Game Board

<NOT COMPLETED> - 16.Incorporate Connect Four Game In Design

<NOT COMPLETED> - 17. Discover Newer Abstract Types

<NOT COMPLETED> - 18. Refactor and Reuse Code In Both Games

SECTION II: Second Iteration[Refactoring/Redesign] Game Project Design

[Till Phase III or Phase IV Submitted Upto 03rd February, 2020]

PART III : Feature Specific Design/Choices and Conventions/Assumptions

GameDesign v2.0 - Requirement I

<COMPLETED> - 1. Tic-Tac-Toe consists of 3x3 Square Cells

Grid Size is fixed so used a 2-D Array.

<COMPLETED> - 2. Game Between Two Humans

Used Dequeue to carry all players.

<COMPLETED> - 3. Game Between Human and Machine

For Machine I have made a function which will make a optimal move.

<COMPLETED> - 4. Winning Criteria - 3 Cells in Row/Column/Diagonal are in Same state

Just Simple Implementation.

<COMPLETED> - 5. Announce Winning Player

Just Simple Implementation.

GameDesign v2.0 - Requirement II

<COMPLETED> - 6. Enhanced Tic-Tac-Toe Game Consist of 9x9 Squares...

Made a function which can be extended in future.

<COMPLETED> - 7. Enhanced Tic-Tac-Toe will continue to expand in depth levels...

Made a function which can be extended in future.

<COMPLETED> - 8. Extend Game to 4x4 Board

Already Implemented Variable size Grid.

<COMPLETED> - 9. Human Player is Biased...

By Cloning the current Grid.

<COMPLETED> - 10. Storing and Retrieving Game State

Stack Implementation

<COMPLETED> - 11. Store Players Game Statistics: Leaderboard

Class Leaderboard will be sufficient.

GameDesign v3.0 - Requirement III

<COMPLETED> - 12. Super Tic-Tac-Toe Game Extends Enhanced Tic-Tac-Toe Game...

Extended the previous classes to implement enhanced tic tac toe

<COMPLETED> - 13. Design Winning and Losing Criterias On All Edges...

Checkwin function for super tic tac toe checks the condition by further calling the check functions on row and the two diagonals

<NOT COMPLETED> - 14. Incorporate Irregular shaped Hexagonal Boards

GameDesign v4.0 - Requirement IV

<NOT COMPLETED> - 15. Incorporate Biased Game Board

<NOT COMPLETED> - 16.Incorporate Connect Four Game In Design

<NOT COMPLETED> - 17. Discover Newer Abstract Types

<NOT COMPLETED> - 18. Refactor and Reuse Code In Both Games

SECTION III:

How to Run/Test Your Code?

- There are two java files
  1. project.java - Requirement 1 and 2 are implemented in this java file
  2. SuperTicTacToe.java - Requirement 3 is implemented in this file

- FOR project.java FILE :
  To run them use ‘javac project.java’ it generates class fun execute the class file using ‘java project’ command this will ask for your input 1/2
  1 is for game between humans and 2 is for game between human and computer
  Each player has to enter the coordinates based on zero indexing
  As soon as the winning condition occurs winner is declared

- FOR SuperTicTacToe.java FILE :
  The above mentioned commands can be used to run the file but here the file name is

SuperTicTacToe.java
Now as soon as file gets executed it asks the user to enter the board dimensions
Now the board gets displayed
“You have to enter the coordinates based on zero-indexing by seeing the board displayed. Positions with 8 are valid inputs”
The above text gets displayed so you can choose from the existing input boxes and enter your coordinates