

# Checkers Game Data Model Concept

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## 1. Game class:

This class is the main controller of the checker game. It controls all the behavior of the game.

The char mode indicates the gaming mode, e.g. human vs computer.

The Boolean colorOfRound is a flip flop, false means now is black player moving while true means white player is moving.

The Boolean moveFirst records which player is moving first.

The int round record the total number of rounds.

The newGame method will initiate everything and generate a random number to decide who goes first.

The loadGame method will read a game info from file and set everything to previous game.

The saveGame method will write all data into a file for future playing.

The method moveRequest is for Player class to ask to move. In this method, it will first check with class Board if is the move legal or not, then will ask board to move. Upon success, another round may be entered.

The method give up give players a faster way to finish the game. The player calling this method will lose instantly.

## 2. Board class:

The char[4][8] pieces shows the current state of the board. Letter “b” represents black piece, “w” represents white piece and space represent empty space. King pieces are represented by upper case letter.

Example:



The reset method reset the board to original.

The set method can set the board to specified state. It's useful in loading a game.

The show method output the board array. It's useful in implementing UI in the future.

The checkLegal method can check with the board that specified moving is legal or not.

The move method can move a piece from a location to another location, regardless it's legal or not.

The result method can return a result of current board. The results are black wins, white wins, draw or not finish yet.

### 3. Player class

The player class is an abstract class. The String nickname is the name of the player. The move method is abstract, provide a method to ask a player to move a piece.

### 4. Computer player class

It's a subclass of Player. The int difficulty shows the level of AI, which lead to difference when AI player make a decision. The move method will acquire the board by the move method in the Board class and decide how to move.

### 5. Human player class

It's a subclass of Player. The move method will enable the mouse operation and allow user to make a move. Once a move detected, it will check if it's

legal first and make a move in board, otherwise it will inform the user and ask a move again.

