Domain Model

SOEN 6011 Tic-Tac-Toe Project

XOGEEKS

Assignment 3

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Domain Model

Following domain model represents entire Tic-Tac-Toe game application

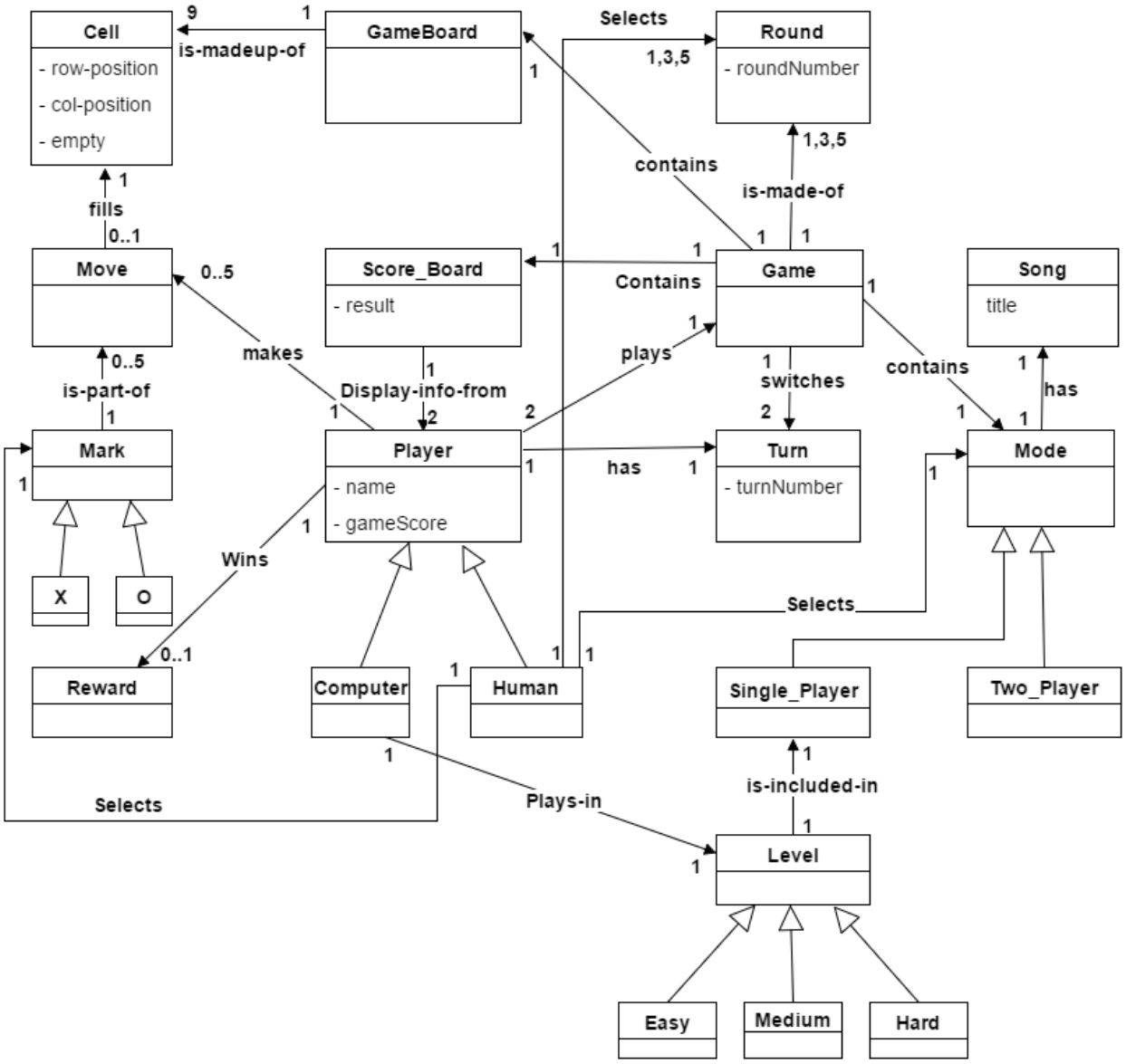

Fig 1: Domain Model

Description:

- **Player:** is the one participating in the game. The following are attributes of this class:
    - **Name:** is the chosen by player(s) in the beginning of the game to distinguish themselves.
    - **GameScore:** is the sum of rounds won by the player during the game, i.e., this attribute will be accumulated every time the user wins a round. Only one score value is kept for each player during the game. After the selected rounds are finished, the player has to start a new game and this value will be reset.
- **Human:** human player has the option to select the mode, level of the game, number of rounds, and a mark to play the game with.
- **Turn:** is used by the system to determine which player has to play. Turn has one attribute turn number.
    - **Turn number:** is a number used to determine whether player 1 or player 2 should make a move and put their mark on a cell.
- **Mode:** is used to select the mode of the game by the player, whether game will be played between two human players (Two players) or between human and computer (Single player). It is selected every time the player begins game.
- **Song:** is the background music played during the game. **'**Song' class has one attribute named title. The mode of the game will determine the song or more specifically the song title.
    - **Title** is used to differentiate the songs that will be played for each mode.
- **Level:** is used to distinguish different levels of difficulty when playing with the computer. Player can select one of three levels: easy, medium, or hard. It is selected every time player selects the single player mode.
- **Round:** Human player selects the number of rounds that is going to constitute one game. There are 3 options for round: 1, 3, or 5 rounds. Therefore each game will consist of 1, 3, or 5 rounds and is over after selected rounds are finished. Player then has to select all the values required (mode, mark, round) to start a new game. This class has one attribute:
    - **RoundNumber:** is a unique identifier to differentiate round instances and demonstrate the current round number in a game.
- **GameBoard:** is the board on which the game will be played. A board contains nine cells.
- **Cell:** 'X' and 'O' marks will be placed on and fill cells. 'Cell' class has three attributes. **Col-position** and **row-position** are used to identify the location of each cell on the game board when a move is made. **Empty** is used to determine whether cell has been filled.
- **Mark:** is the X or O symbol which the player places on the board.
- **Move:** is the click event by the player to fill a certain cell on the board. It will place the player's mark on the cell and the cell will be filled.
- **Scoreboard:** is used to display the name and scores of the players. The outcome of the game (win or tie) will be displayed using **result** attribute**.**
- **Reward:** At the end of the game based on the gameScore of the players, a reward is given to the winner. One reward is given to one player but a player can have one or no reward at one point during the game.