Department of Computer Science & Software Engineering

SOEN 6011 Summer 2016

Domain Model / Data Model

Assignment 3

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Team Name: Triple – T
Group Number - 1
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General Scenario

As the game is executed, the user will be asked to choose **Game mode** (the Game can be Against two Human-beings or One human player and the computer). Different **background music** will be played based on the game mode. The human player is able to enter his/her name and choose the symbol which could be either 'X' or 'O'. Then the user chooses the number of **games** he wants to play in a round (1 game, 3 games or 5 games in a round). After that the player chooses the **difficulty level** of the game (Easy, Normal, Hard). In the case a player wants to play against the computer, the computer uses a heuristic algorithms to play with a human player. Based on the difficulty level of the game, there will be different heuristic algorithms.

After entering all the information, the Game will be started by two distinct players and the layout will be displayed which contains a 3*3 board game(9 squares), some buttons and a background picture. The first player places his (or its) symbol on an empty square on the board. As this player marks his choice, the chance to play will be automatically transferred to the other player with the switched symbol. The second player does likewise. The player shall be able to make his selection only over empty cells because the squares already chosen will be inactive.

The process repeats until one player has three of his (or its) symbols in a row, column or diagonal, or there are no more squares to play, in which case the game ends in a draw. Game concept considered on Domain model would check the Game state. It looks for the winner of the game or draws the state of the game. Hence, there would be three outcomes of the games: player1 is the winner, player 2 is the winner or the match is a draw. If the game is held in rounds, the player with the maximum number of wins in a round will be the winner as a whole. The winner gets 1 added to his/its score. No change is made to a losing player's score. Also, both players' scores stay the same if the game ends in a draw. The score information will be kept on a ScoreBoard. At the end of the game, the winner will receive a gift.

To develop the **difficulty level** of the game, a concept of time frame constraint will be added in which the players need to mark their selection within a particular time frame otherwise they lose the game. This time frame will be defined based on the difficulty level which is chosen by the player at the beginning of the game. This situation applies when a player wants to play with another human player. If the player decides to play against the computer, the heuristic algorithm defines the difficulty of the game.

Features like administrator are needed to manage the highscore and logs. If the user wishes, he can start a new game, or, quit the game.

Domain Model for Tic-Tac-Toe Project

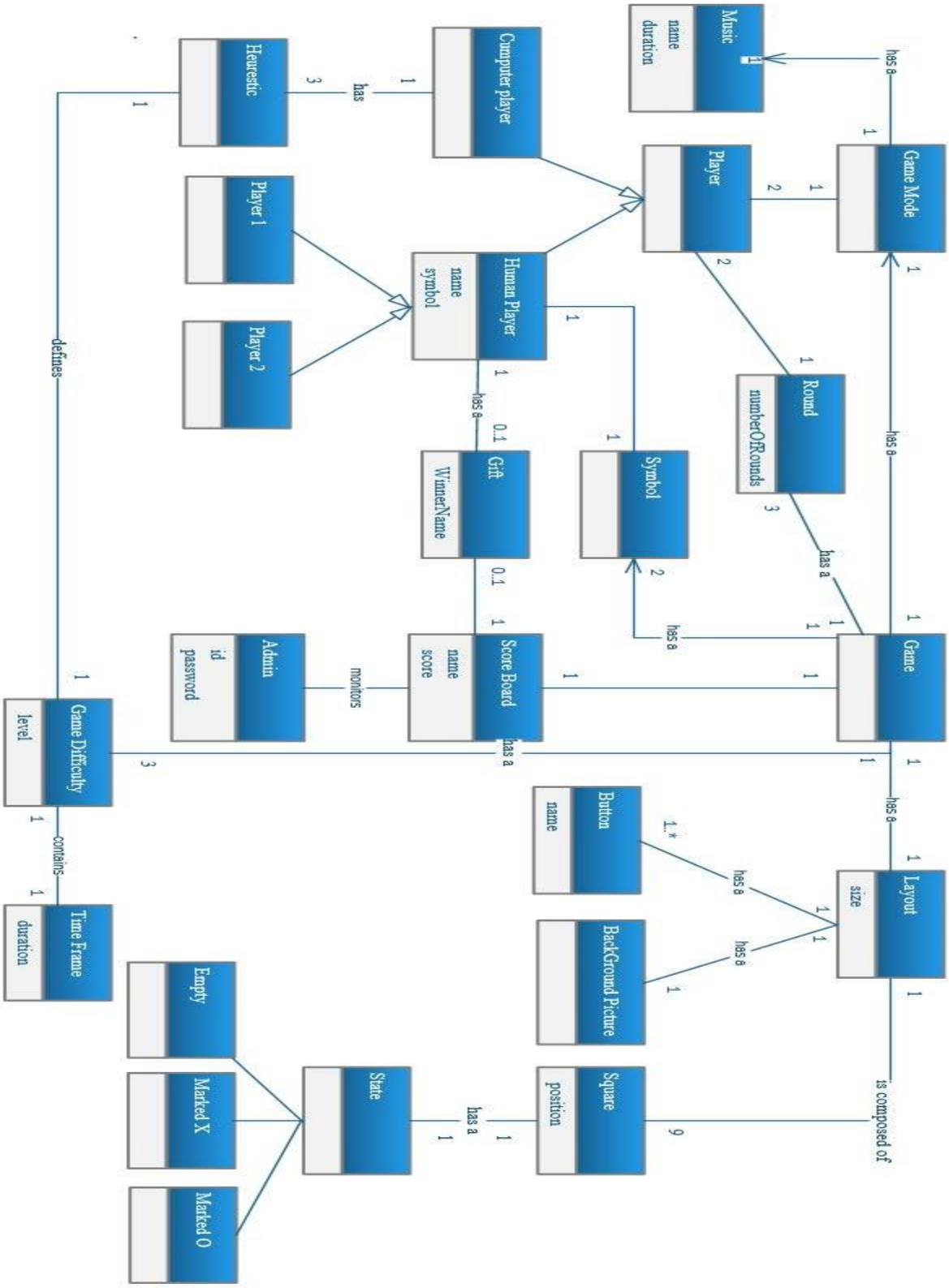

Fig: Domain model for tic-tac-toe.