CS 319 - Object-Oriented Software Engineering

Analysis Report – Draft

Head Ball

Group 4

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Table of Contents

1. Introduction

The Head Soccer Game is a sport game that is based on time and score based game. In this game users will have change to control their favorite team's football players that has visualized in funny appearances in which they have big heads. The Head Soccer Game has a potential to attract attention of football fans and players who likes competitive games. Our aim is to make a sport game to give people to a change to control famous players and give users enjoyable time by competitive matches. Players will control characters that on a stadium that can be chosen by player and there will be two characters which are opponent and plays a competitive match on time limited game or score limited game.

The Head Soccer Game is GUI based game and it aims at give user to have enjoyable time by allowing them football players in funny appearance and give them a chance to play an enjoyable competitive game.

2. Current System

In current game user can play in multiple player mode and there is a ball which is interacts with characters but the physics in game is not completed yet, since ball does not affected by gravity. When ball touches player ball changes its direction according to its coming direction.

3. Proposed System

This game can be played by both two players or single player and user should choose which game will be played. In single player game user will player will choose a team that he/she want to play with and he/she can also select the opponent. Moreover, user can choose the stadium that they want to play on. When game starts there will be ball on the top of the screen which falls because of the artificial gravity then user can approach and shoot the ball with both heads and the foot. If ball

touches characters football and head get automatically interaction and ball accelerates and changes direction according to coming direction and the coming angle of the ball. If the character shoots the ball, ball will accelerate more than shoots with head. If ball touches the ground ball will rebound but it will not go as long as before since ground has a friction power.

If player chooses single player game his/her opponent will be a computer which has an artificial intelligent. During single player games, there will tournament that includes 16 matches that player will be play and during the tournaments opponents of the player will be chosen randomly and player can decide whether the matches will be time limited or score limited. In multiplayer mode player will play one match that will be decided by player whether it will be time limited or score limited. But if player will choose multiplayer mode his/her opponent will be another player who controls another character that can be controlled by direction arrows on the computer. If player has choose time limited mode players aim will score more than his/her opponent in that time but if the player chooses the score limited mode players aim will be reach the determined time before their opponent.

3.1 Overview

The Head Soccer Game is a sport game which is designed for linux and windows desktop machines. When game is started user will see a screen which has New Game, Continue, Instruction, Settings, Credits and Exit buttons. New Game button opens the new game screen in which user can select whether game will be played against the artificial intelligence or another player then user can choose stadium, ball and characters on the game, having done these player can start the current game. Continue button helps user to continue the game that user exited. Instruction button user will find a screen that includes tips and information for the game, this screen shows controls and information about power up symbols. Settings button take user a page that user can change sounds, controls and in game settings which are ball’s appearance and the stadium. If Credits button is

clicked user will see a screen that includes programmers of the game and date that programming part of the game has finished. Exit button closes the screen.

3.2 Functional Requirements

3.2.1 Single Player Game

Before starting single a player game, player have to choose a team and a player from that team. Then player should choose whether the match will limit by time or a score limit. After specifying it player will choose difficulty then player can start the game. In single player mod, there will be 16 teams in the tournament. User has to win in each round in order to win the tournament. In single player game mode player's opponent will be controlled by artificial intelligence.

3.2.2 Play Multiplayer Game

Before starting multiplayer a player game player should choose whether the match will limit by time or a score limit. After specifying settings, player will choose their characters that they will control. Then they start playing the game.

3.2.3 Pause

User will be able to stop the game during a match. The game will be paused if user pushes the button "ESC" from his keyboard, alternatively user can press the pause button from game screen. In pause menu user can look at Instructions, go back to Main Menu or exit the game instantly.

3.2.4 Instructions

User will see the controller buttons for both players and also an explanation of the power-ups can be seen from the Introductions. An example of the power-ups can be seen from the figure. It may change during implementation as we develop program.

3.2.5 Settings

Setting menu is reachable from the main menu. It contains three different options one of them is sound settings. In sound settings, user can mute or unmute the game music and sound effects. In key board settings user can change the kick button. In in-game settings user can select the stadium and ball images and game speed can be adjusted from here.

3.2.6 Continue

If the user has played a game before and returns the Main Menu he/she can reloads game by clicking Continue button. User will be able to continue the tournament where they left.

3.2.7 Credits

User can see the developer of the game, some information’s about the developing process and some funny stories.

4.Nonfunctional Requirements

-Performance Requirements

- In order to have a smooth game flow, the software will handle the amount of throughput within the size 1 MB in 1 second, that is necessary for continuity of the game.
- Response time will be low enough so that it will never surpass 1 second.
- Highscores will be saved (written) to the txt file. Reading this data and creating highscore table will be fast, it will not surpass 1 second.

-Reliability Requirements

- The game will be robust. Empty highscore list will not be a problem while displaying highscore list.
- Option preferences, listed highscores and saved games will be stored in files.

-Supportability Requirements

- The game will be executable for every platform that Java works.
- The software will not require any installation process.

- Usability Requirements

- The game rules will not be hard to understand, user shall be able to learn game rules within 2 minutes by reading help instructions.
- Game controls will be easy to understand such that user shallbe able to learn game controls within 1 minute by reading help instructions.

- Constraints

- HeadBall is going to be implemented using Java programming language.
- Game graphics will be cropped from visuals found. (Example: Ronaldo's Head)
- Game language will be English.

5. System Models

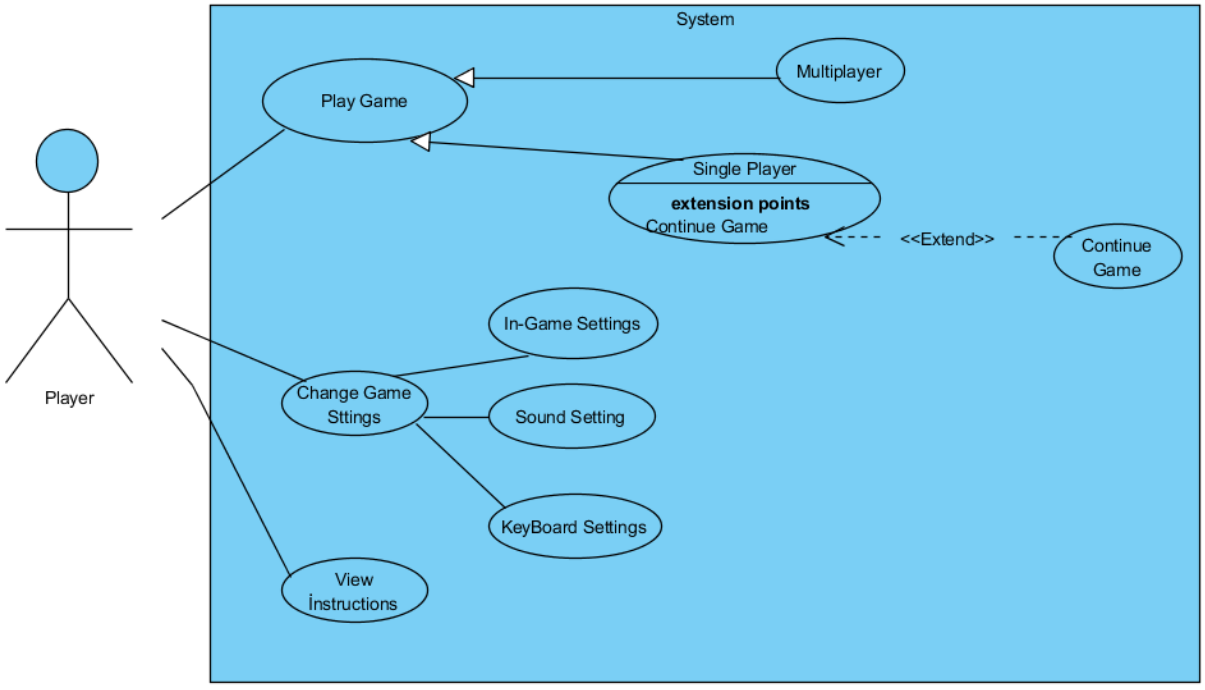
5.1 Scenarios

Scenarios will be added.

5.2 Use Case Model

Use Case Scenarios will be updated later.

5.2.1 Use Case Diagram

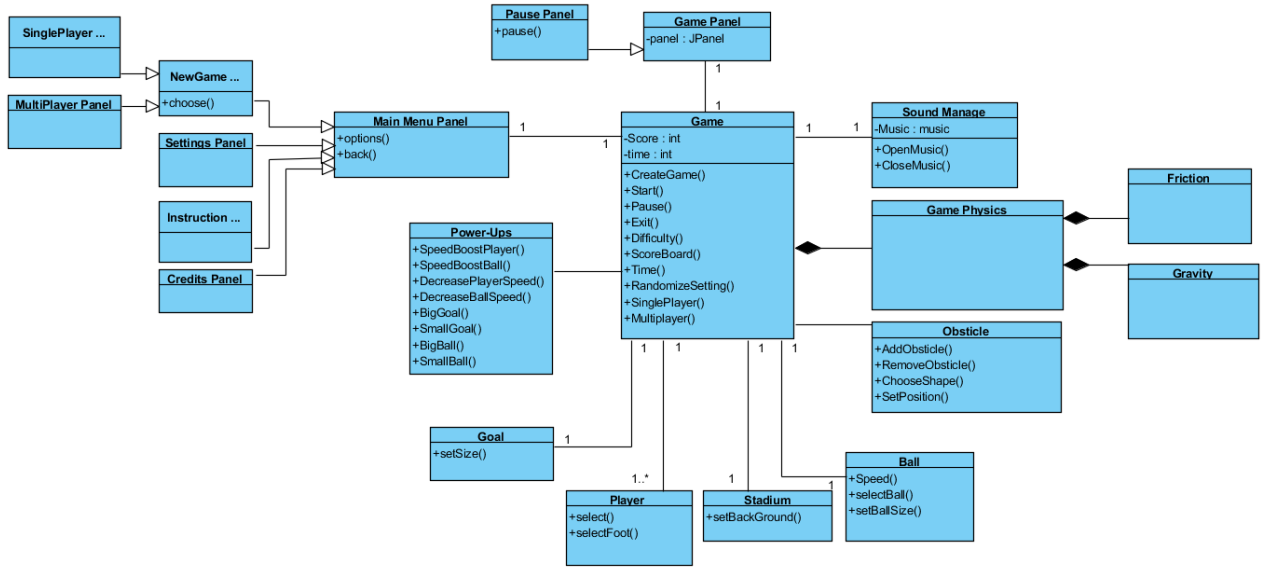


5.3 Object Model

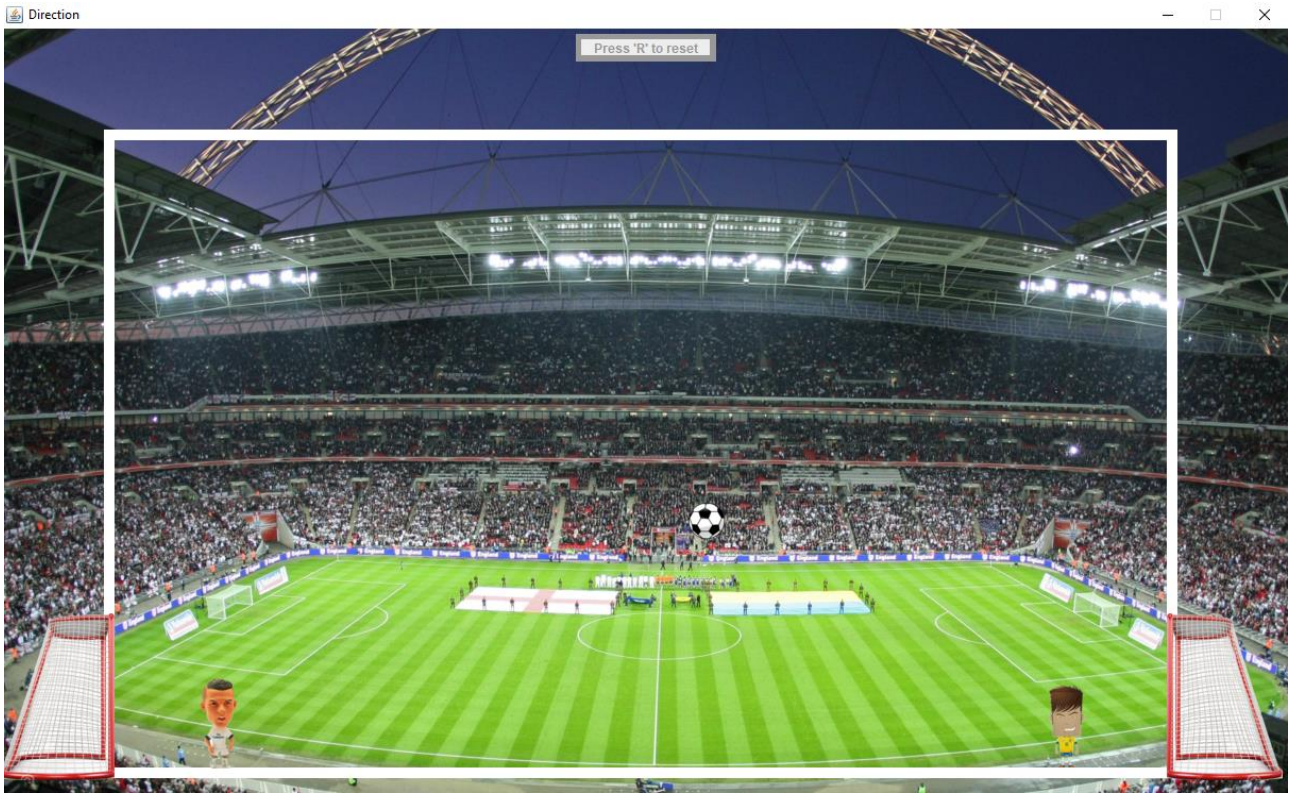
5.3.1 Data Dictionary

The data descriptions will be updated later.

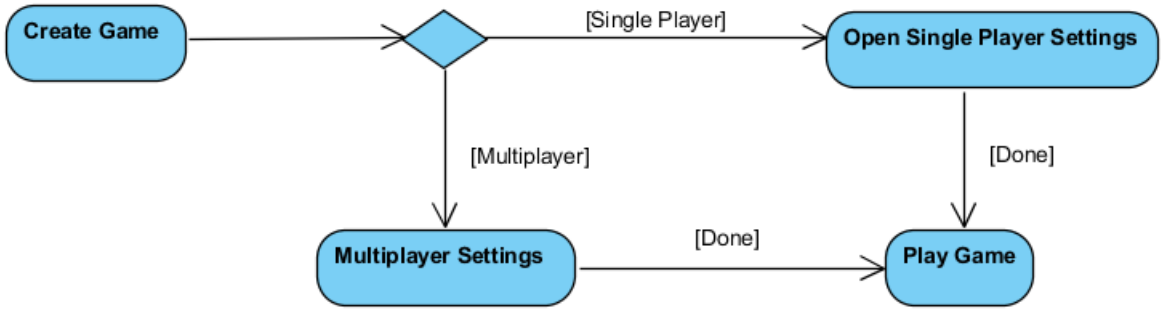
5.3.2 Class Diagram



5.4 Dynamic Models



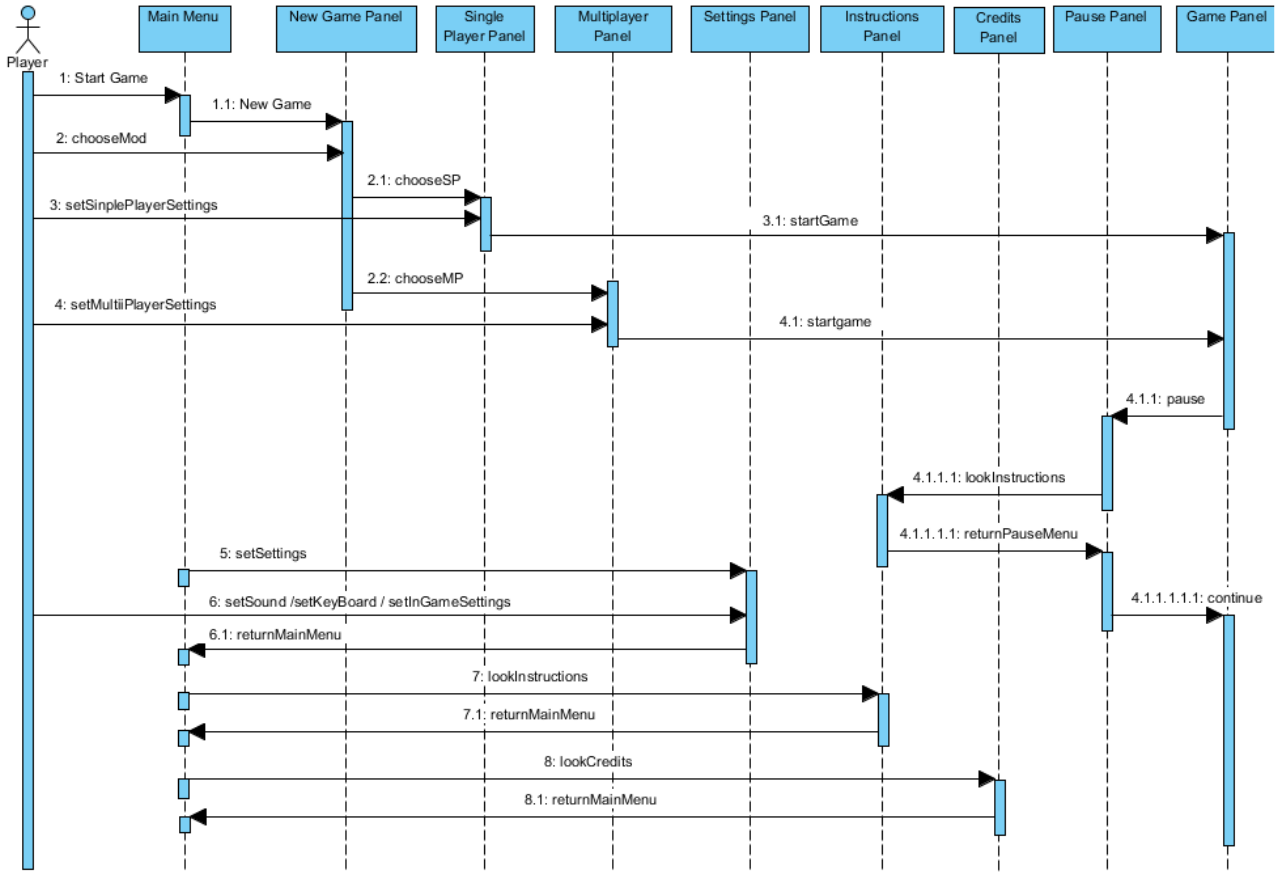
5.4.1 Activity Diagram



5.4.2 Sequence Diagrams

Other sequence diagrams will be added and updated.

Menu Panel sequence diagram:



5.5 User Interface