	Department of Computer Engineering
	Faculty of Engineering
	University of Sri Jayewardenepura
Course	Programming Quest
Course Code	CO2210
Deadline	On or before 23:55H on 9th November 2021
Assignment Number	07
Total Marks	100
Objectives	● Get familiar JAVA programming language based development. ● Use Object Oriented Programming techniques in simulation ● Use good coding practices.

General Instructions

● This is an individual assignment.

● This assignment should be completed using JAVA programming language.

● Use the standard header files in the assignment.

● Do not use external libraries in this assignment.

● Submit all source code files (*.java) in a zip file. The zip file should be named in the yy_ENG_abc.zip format. (for example, if the index number is 19/ENG/777, the zip file name should be 19_ENG_777.zip.

● Late submission are accepted upto 72 hours from the original deadline but marks will be deducted.

● Submit the zip file to CO2210 Programming Quest LMS page on or before the deadline mentioned above. If the LMS course page is not working, then the zip file can be emailed to randima@sjp.ac.lk .

Quest 07 - Football game simulation

Football is a world famous game where two teams are playing against each other to send the ball to the opposition side goal. Each team has 11 to 18 players. One player is positioned as goalie and he prevents the ball pass into the goal area. Each team has a one couch and one doctor.

In the football ground, there is a main referee and four referees in the four edges of the ground. The game will play two 45-minute period, which is known as *half (first half and second half)*. There is a 15 minute break between the two halves.

If both teams unable to achieve a goal or scored equal number of goals, then the game will be played for another two of 15 minutes periods after the second half. Even then the goals at that extra time, then 5 opportunities to shoot the ball to the goal is given to each team. The team who scored most out of five chances will win the game.

The team to play first is chosen by tossing a coin.Regular rules taken place in football game is applied in this game as well.In this project, penalty issuing process which is taken place in actual game is ignored.

Please refer the following site for more details about rules in football :
http://www.rulesofsport.com/sports/football.html

Once the game started, the score board indicates
- Names of two teams
- Number of goals in each team
- Last goal played by whom
- Period of the game : first half / interval / second half / extra time / penalty shots to end the game
- Time to end the game

In addition, it also display current status of the game. i. e.
- Name and the team of the player who has the ball
- Name and the team of the player who received the ball once it is passed
- The ball out of the field or in the field
- Whether the ball goes to the goal area or stopped by the goalie
- Etc.

The game is developed using the object oriented concepts. All the players, couches, referees, and doctors are considered as person. The ball, football ground, goal area,and scoreboard are considered as objects. Number of goals played by each player needed to be recorded and kept in players' records as well. You are suppose to submit a class diagram along with the source files (pdf /jpeg).

Once the game is started, it should automatically update the score board.
Hint: You can assign a probability value of achieving a goal to each player and goal preventing probability to the goalie. A randomly generated number can be used with the probability value to decide whether there is a goal or not. This can be extend to decide whether the ball is passed to the team mate successfully or not, ball goes out of the field or not, who receives the ball and etc. In addition, you do not need to consider penalties.