GEBZE TECHNICAL UNIVERSITY COMPUTER ENGINEERING CSE 222 / 505 – SPRING 2020 GROUP 11 – PROJECT REPORT

1. Group members

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2. Problem definition

A software system, that organizes and keeps the informations for different countries about soccer, will be designed. This system has users from different levels such as Federation President, Club President, Coach, Player, Employees etc. The Federation will be the highest foundation in the country in this system. This foundation organizes the league. There must be teams to talk about the league and there is a Referee Committee works for the federation. There can be different amount of teams in different leagues and federation assigns the referees to matches. In every team, there are so many types of employees such as Players, Coach, Club President, Health Personnel etc.

In this system, Federation and Clubs Presidents have permission for adding, removing and adjusting the other things. The Club Presidents can add and remove player and Club Committee can change the president and coach. The Federation President can assign the referees to matches and federation committee can change the president and adjust the date of the matches. Within the federation and clubs have committees that can change their presidents.

3. Users of the system

The system users with their main works.

Users	Main Work
Federation President	Assign new federation president, add and remove federation admin.
Federation Admin	Add and remove referees, clubs and matches.
Referees	
Club President	Assign new club president and coach, add and remove club admin.
Club Admin	Add and remove club players, change player's health situation.
Coach	Determine the player squad before the match.
Club Players	
Health Personnel	
Fans	See only information about the club players.

4. Requirements (detailed)

In this software, we firstly have a login page in order to authenticate the user. If the user does not sign in the system, it can see the only public information and does not have any privilege. There are privileged users in the system such as federation president, club president, coach, club admin, federation admin and system admin. All of the users have different works to do so there is no conflict in the system about works.

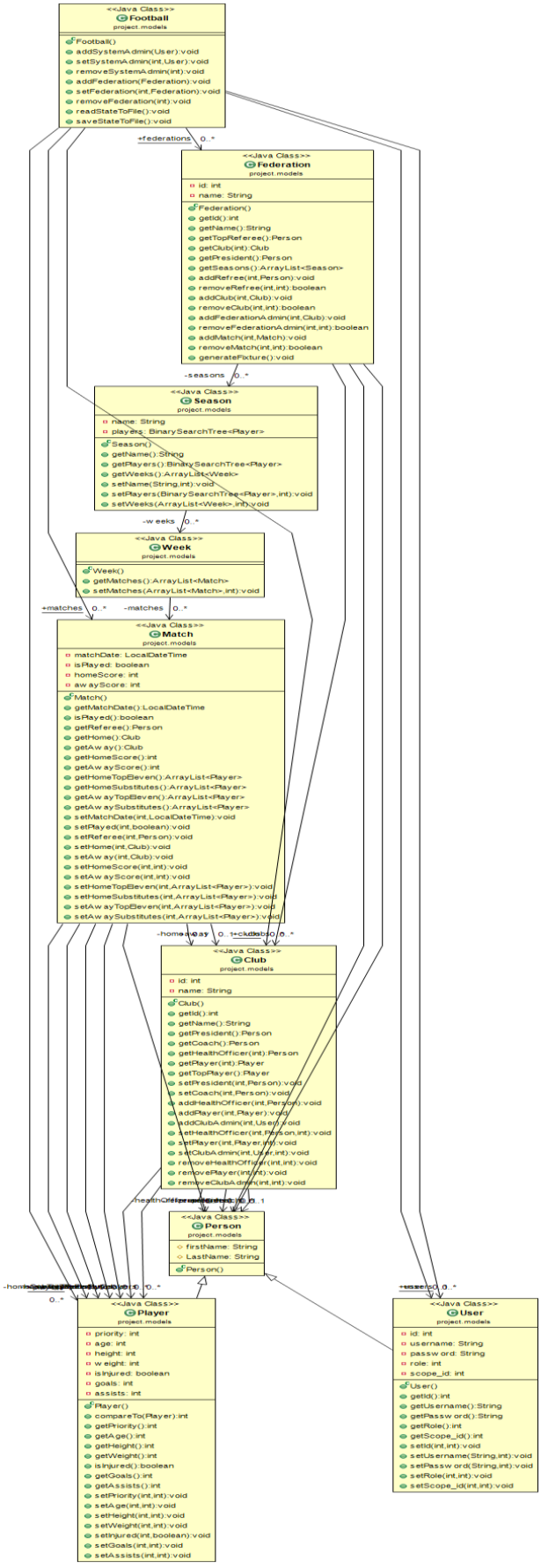
After the verification process done, firstly we have a main page to see standings of football clubs for a football league which user chooses and changes easily by navigating between countries (Football Federations) and football leagues. Then we have a page for tracking all the matches played and will be played in the latest football season. For the ones that are already played, user can see the details about the matches. If user wants to see information about previous seasons, it will be showed as an option to user. There will be another page to see all the information with details of a football club such as football players, stadium, club president etc.

The program will have another page to see detailed information about players such as name, surname, age, height, weight etc. when information of a player is chosen. Finally there are pages for users who are privileged such as admins, presidents.

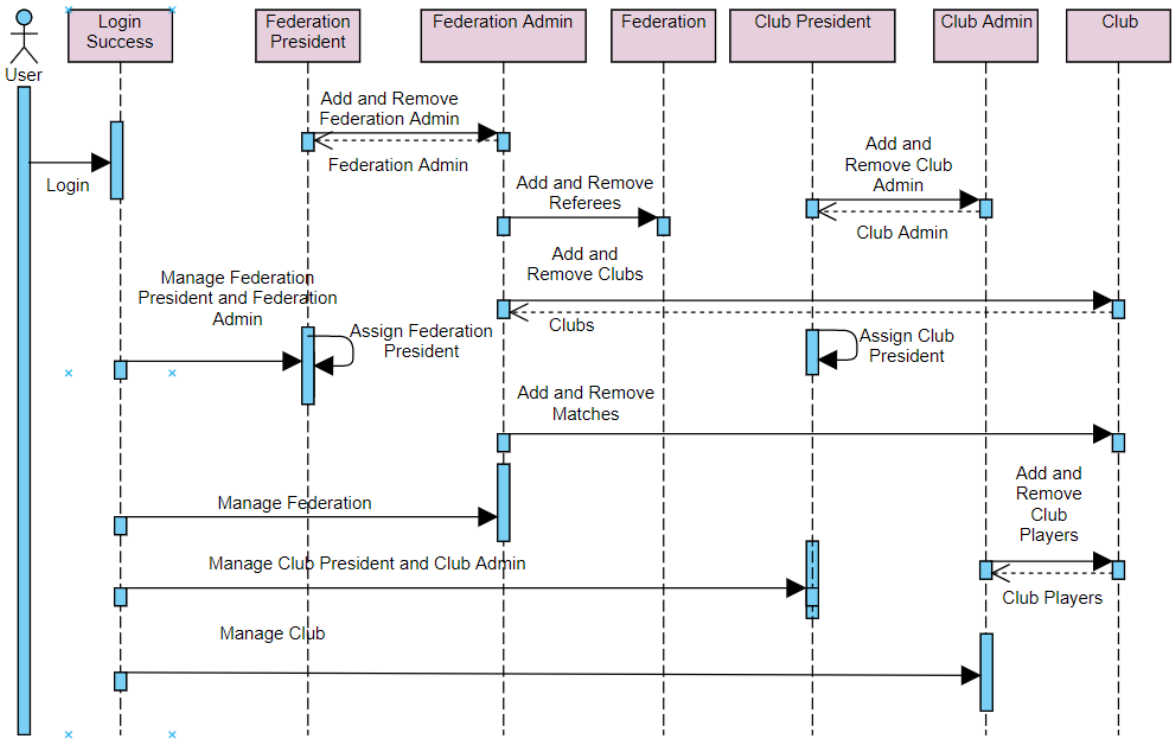
5. Detailed system modules

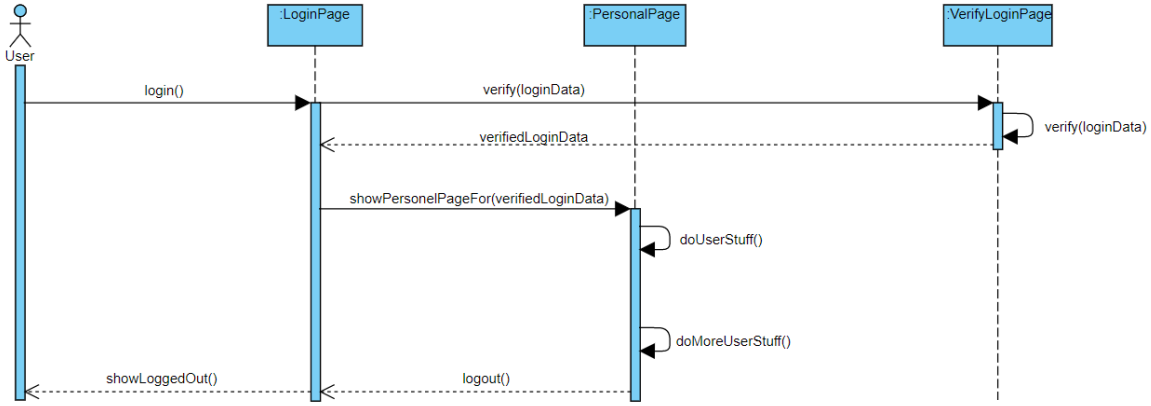
ArrayList is used to hold the weeks, clubs, seasons etc. PriorityQueue is used to determine the players who are in and who are out. BinarySearchTree is used to see some goal specifications. Queue is used to hold the referees of each federation separately. This usage of these data structures will be given more detailed in implementation details part.

6. Class diagram



7. Sequential diagrams





8. Other diagrams

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9. Implementation details

ArrayList : HealthOfficer, seasons, clubs, weeks, matches and when holding the players in matches class, ArrrayList is used as the data structure. These informations must be accessed randomly so that is why ArrayList is used.

PriorityQueue : Every player has its key priority to be in the play. For indicated keys, top eleven, substitutes and players who are out of the team are determined. Players who have the highest priority plays the match for the team. That is why priority queue is used here.

BinaryTree : In this system, user can see the goal amount higher than the indicated amount. In this binary search tree, a player, who has got the maximum amount of goals, is chosen from every team and is pushed to the binary search tree. The point is every team has only one player in this tree. Because of search algorithm takes O(n) time in binary search tree, it is appropriate to use.

Queue : Every federation has referees. This referees can be hold in a queue. In this structure, every referee got a game to rule fairly. When a referee ,who is at the front of the queue, is assigned to a match, it is removed from the queue and goes to the match, that provides federation to a referee can be assigned a match at every week if there are enough referee to matches. After the match, referee goes back and is pushed to the end of the queue. In this way referees have been given to chance to rule the games in order.

10. Test cases

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Results	Pass/Fail
TO1	Check login with invalid username password	1.Open program 2.Enter username 3.Enter password 4.press login	username=admin password=admin	User shouldn't access any account	Pass
T02	Try to reach a page which your user is not authorized to	1.Enter the program as guest 2.Try to find the page to change a clubs players	No data	User should not be able to see the pages which he/she is not authorized to reach	Fail
T03	Check Player adding with invalid data type	1.Login with a club admin account 2.Navigate to add player page 3.Try to create a player with age "CSE222"	Age = "CSE222"	Application should warn user that given age is invalid	Fail
T04	Check Player adding with valid data type	1.Login with a club admin account 2.Navigate to add player page 3.Try to create a player named "X Æ A-12"	firstName = "X Æ A-12"	Application should create a user with given name	Pass
T05	Check adding a match into the system	1.Login with a federation admin account 2.Navigate to add match page 3.create a match	matchDate= 05-08-2020 home=FB away=GS …	The match should be added succesfully	Pass