Cairo University  
Faculty of Computers and Information



**CS251**

**Software Engineering I**

GoFo Booking System

Software Design Specifications

And Implementation

Version 2.0

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# Team

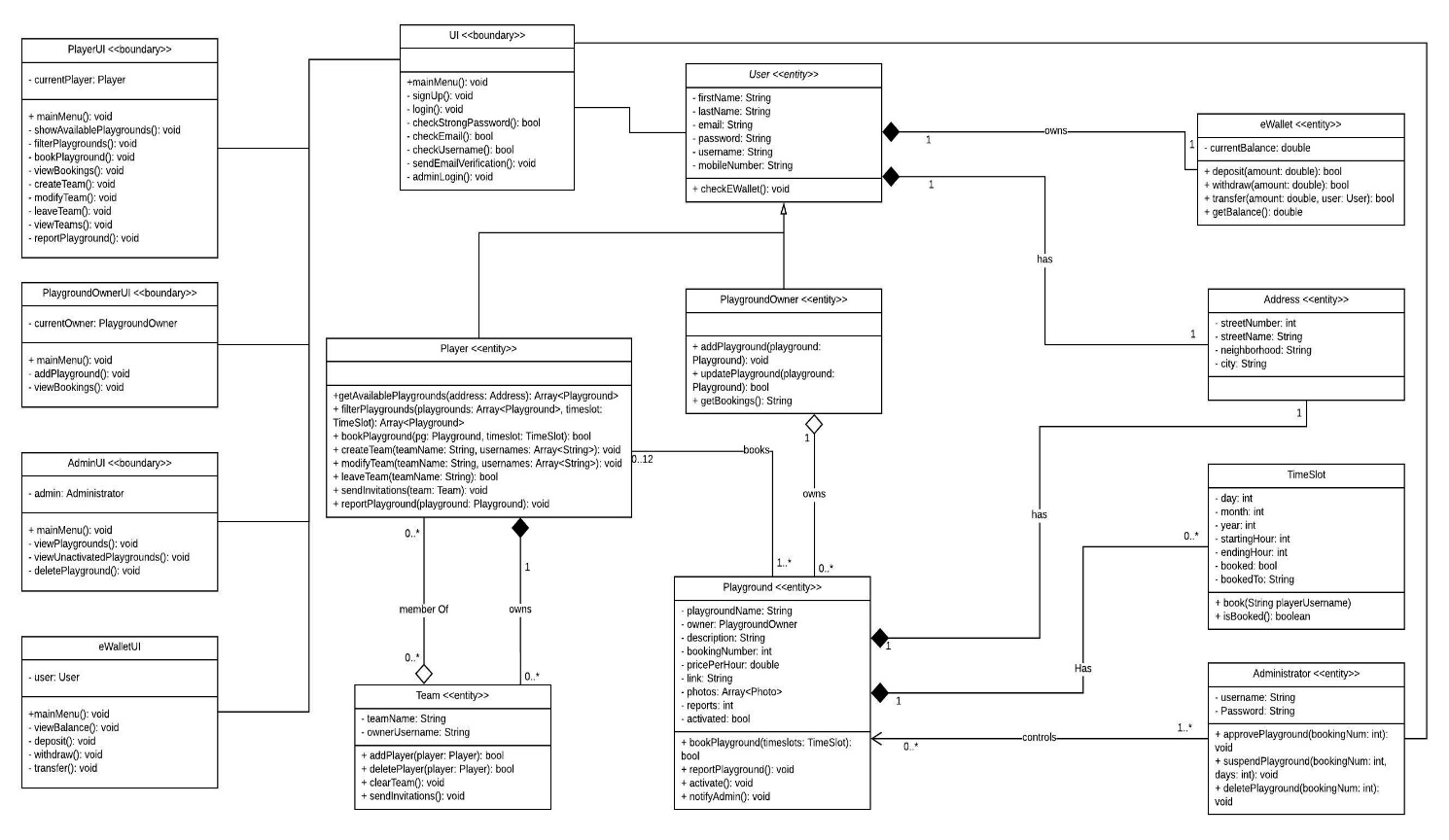
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# Document Purpose and Audience

* **This document includes Software Design Specifications for GoFo football playground booking system. It describes the Class diagrams, Sequence diagrams and State diagrams.**
* **It is specially meant for developers that will work on the project in order to be organized.**

# System Models

## I. Class Diagram(s)



## 

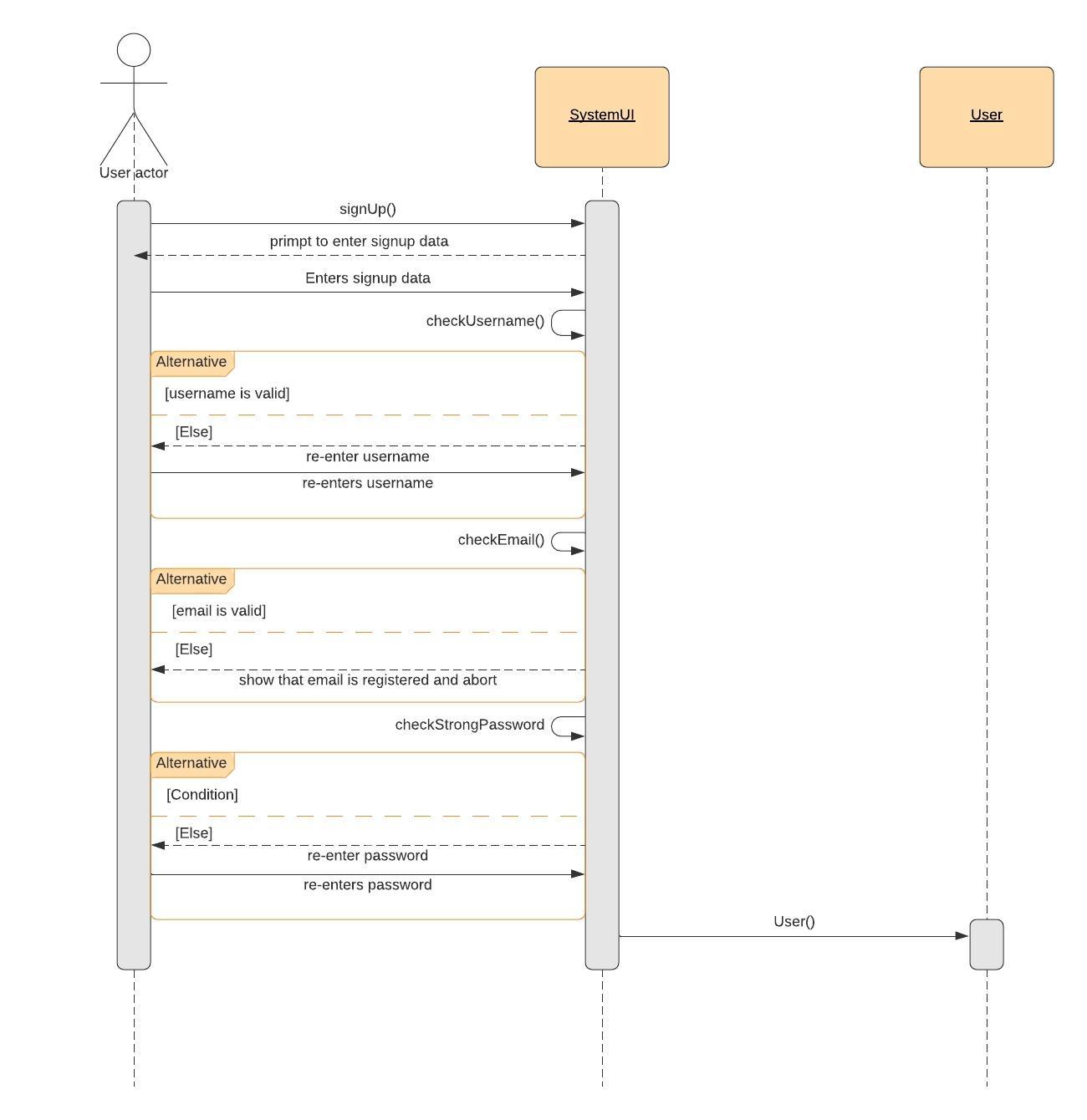
## II. Class Descriptions

| **Class ID** | **Class Name** | **Description & Responsibility** |
| --- | --- | --- |
| 1 | User | An abstract class (generalization) that holds the common properties between a Player and a Playground Owner |
| 2 | Player | A class that inherits User, and allows player to book playgrounds and do player functionalities. |
| 3 | PlaygroundOwner | A class that inherits User, and allows an owner to add (own) playgrounds and control them |
| 4 | Playground | A class that hold the attributes and operations that are done on a Playground, and it is ownder by a PlaygroundOwner |
| 5 | Team | A class that is meant to group players together to form a team, and has a team owner Player and team member Players. |
| 6 | eWallet | A class that has the responsibility of controlling financial operations in the system, and can be connected to an outside method like Fawry, and any User must have one eWallet. |
| 7 | Address | A class that hold an address information divided into pieces in order to make the process of searching for playgrounds in a specific area easier, and it’s owned by Users. |
| 8 | Administrator | A class that can do special operations concerning playgrounds such as delete or suspend a playground |
| 9 | TimeSlot | A class that is meant to store time slot data which is a date and a starting hour and an ending hour. |
| 10 | UI | A boundary class for enabling users to sign up and login to the system, |
| 11 | PlayerUI | A boundary class for enabling players to interact with the system, book playgrounds, etc. |
| 12 | PlaygroundOwnerUI | A boundary class for enabling owners to interact with the system, add playgrounds, review their current bookings, etc. |
| 13 | AdminUI | A boundary class for enabling admins to control playgrounds, like activating, suspending or deleting a playground |
| 14 | eWalletUI | A boundary class for users whether players of owners to check their eWallet balance, deposit using an external service, or withdraw their money. |

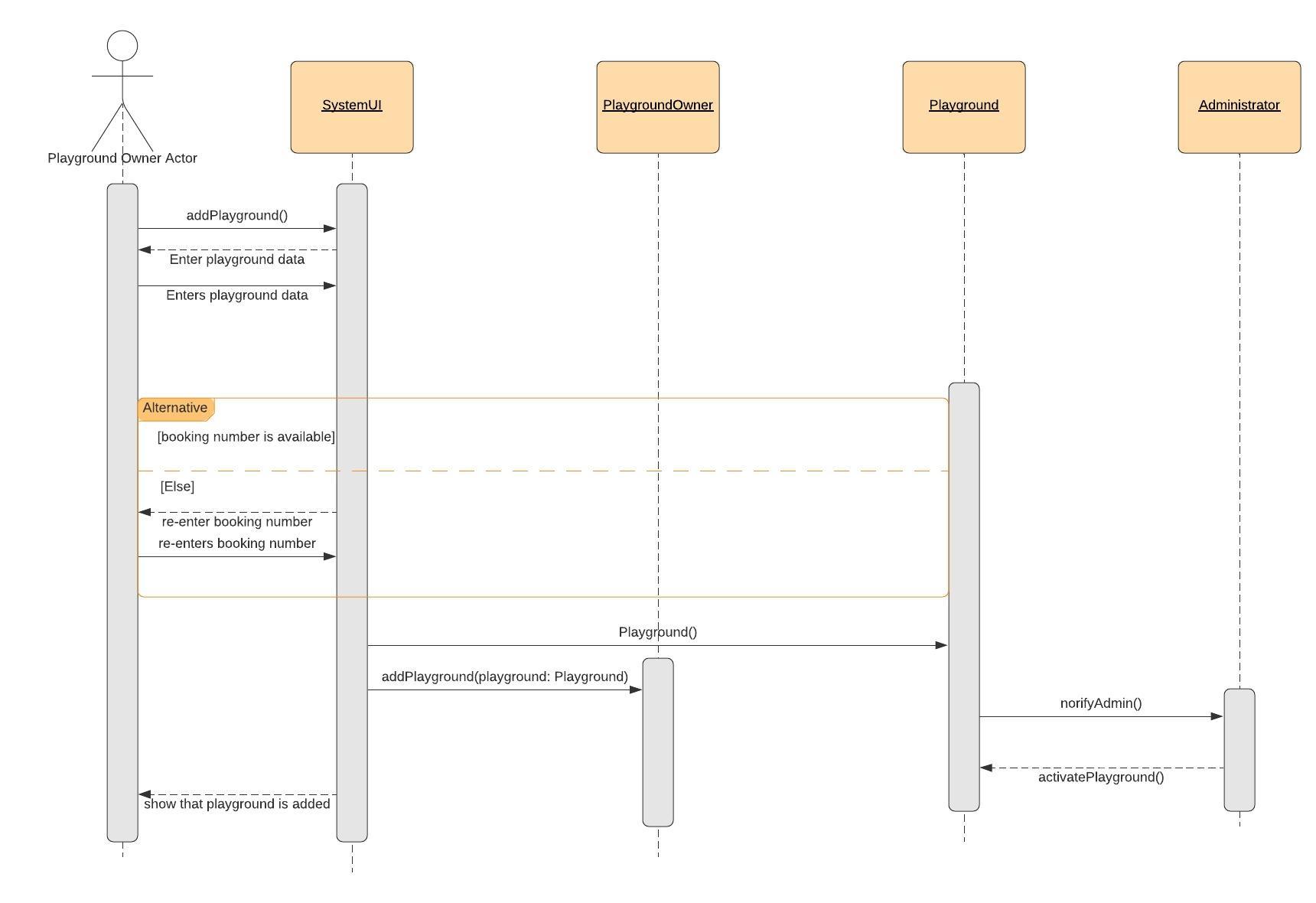
## 

## III. Sequence diagrams

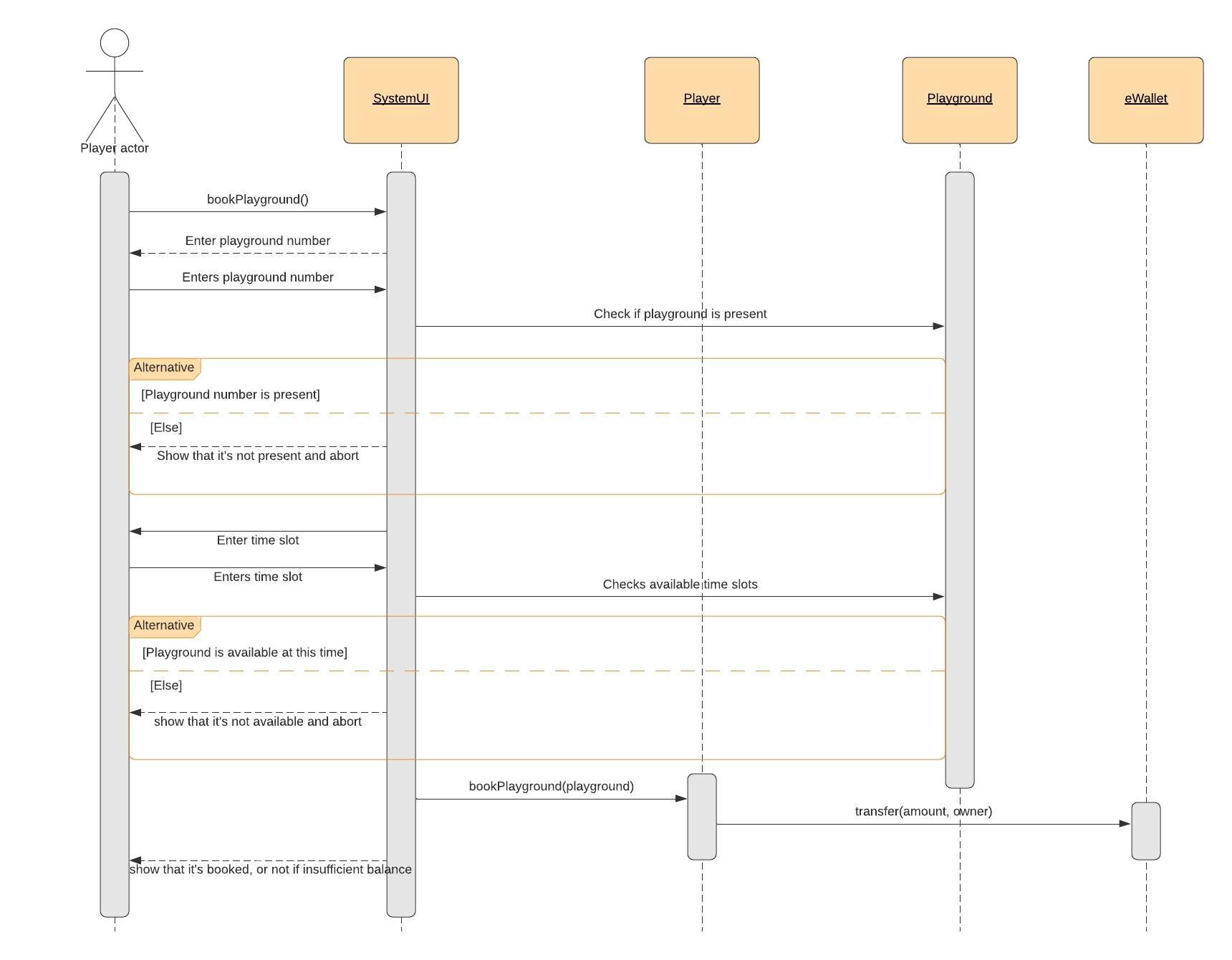
1. **Register a new user**



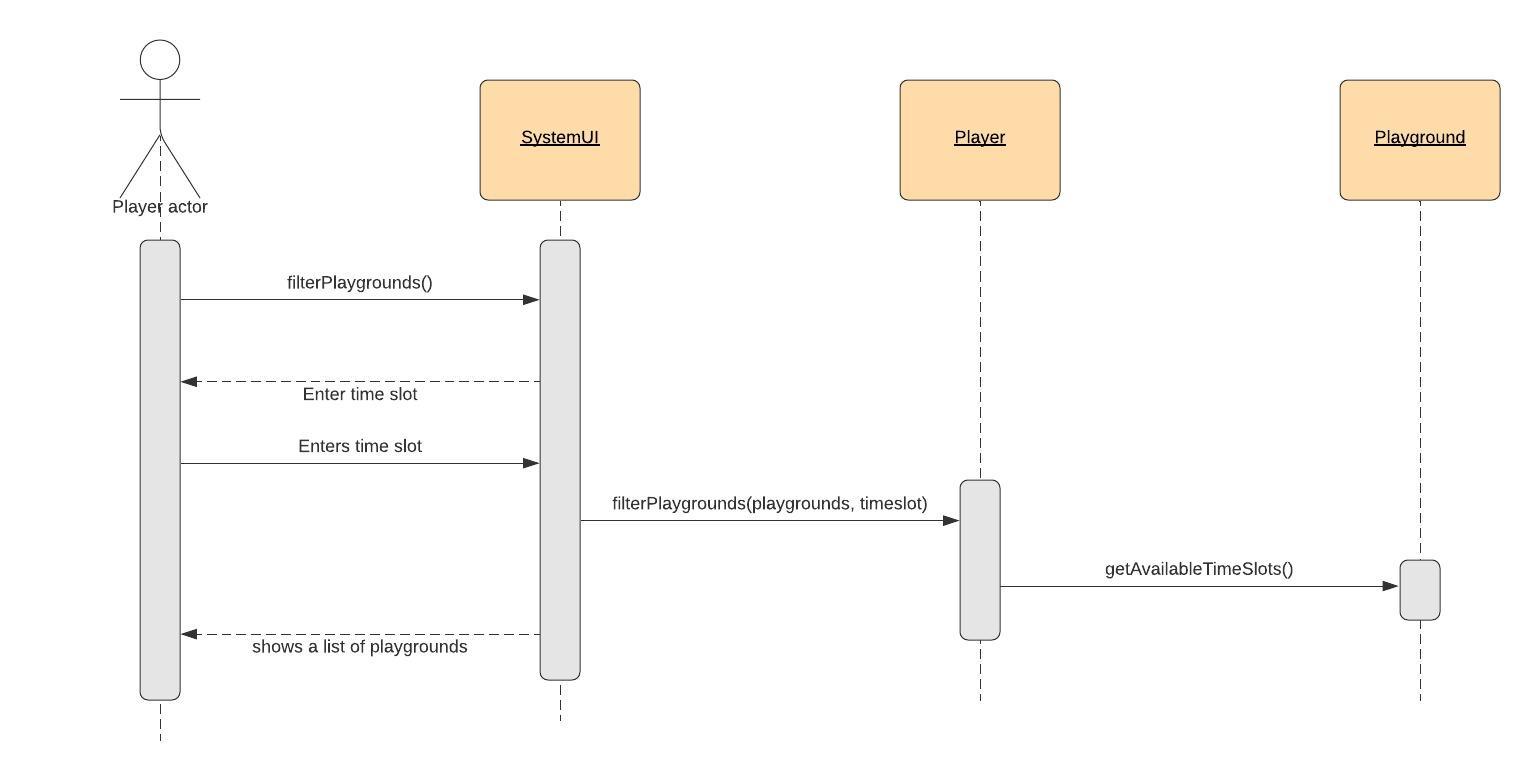
### Add a Playground



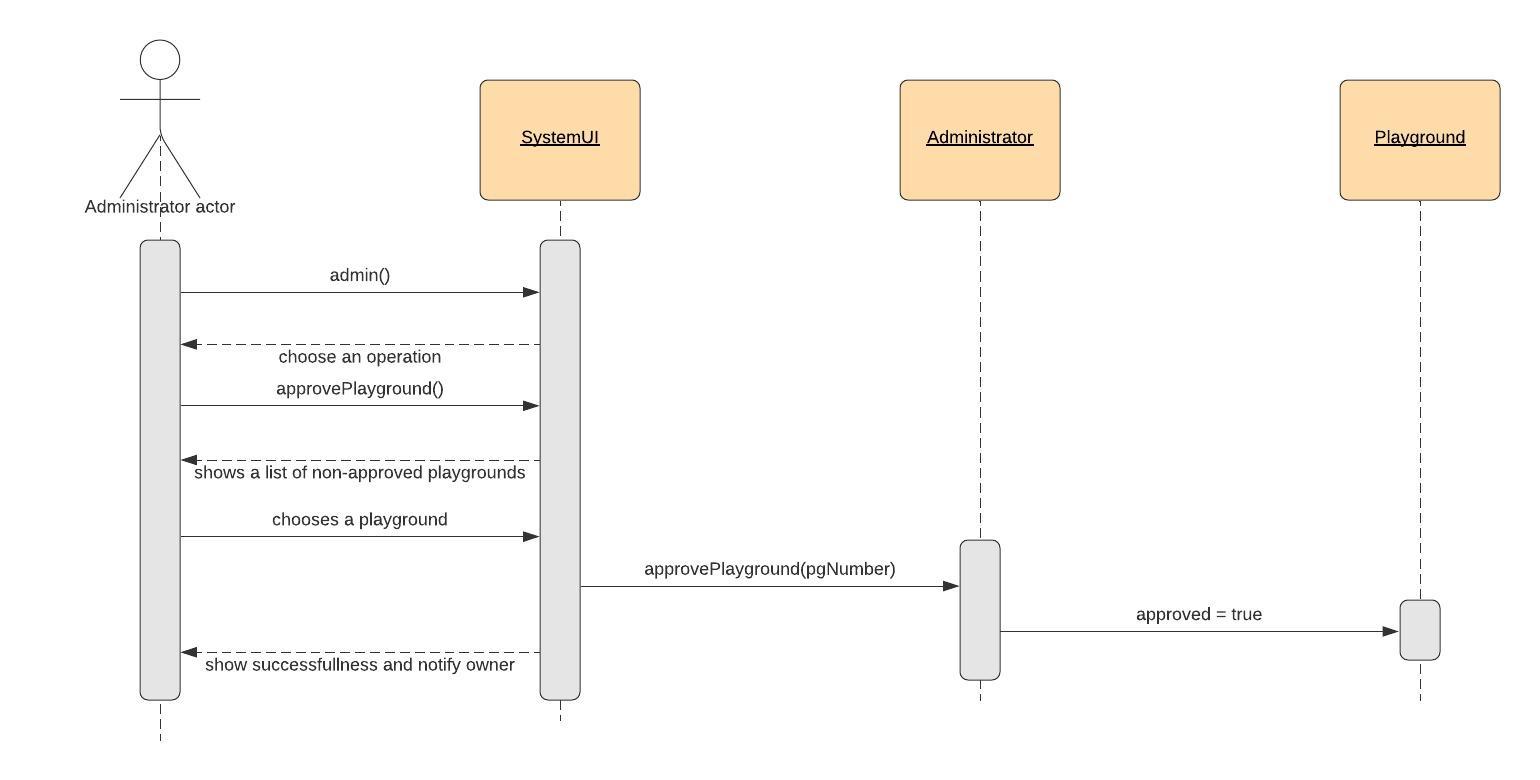
### Book a Playground



### Filter Playgrounds using time slots



### Approve a playground by an Administrator



### Create a TeamCreate a Team

### Class - Sequence Usage Table

| **Sequence Diagram** | **Classes Used** | **All Methods Used** |
| --- | --- | --- |
| Register a new user | Class UI  Class User | signUp()  checkUsername()  checkEmail()  checkStrongPassword()  User() |
| Add a Playground | Class PlaygroundOwnerUI  Class PlaygroundOwner  Class Playground  Class Administrator | addPlayground()  Playground()  addPlayground(playground)  notifyAdmin()  activatePlayground() |
| Book a Playground | Class PlayerUI  Class Player  Class Playground  Class eWallet | bookPlayground()  bookPlayground(playground, timeslot)  transfer(amount, owner) |
| Filter Playgrounds by timeslots | Class PlayerUI  Class Player  Class Playground | filterPlaygrounds()  filterPlaygrounds(playgrounds, timeslots)  getAvailableTimeSlots() |
| Approve a Playground by Administrator | Class AdminUI  Class Administrator  Class Playground | Admin()  approvePlayground()  approvePlayground(pgNumber) |
| Create a Team | Class PlayerUI  Class Player  Class Team | createTeam()  createTeam(usernames)  addPlayer(player) |

## 

## IV. User Interface Design

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| --- | --- | --- |
| **Screen ID** | **Screen Name** | **Screen / Wireframe Description** |
| 1 | Application View | The Main menu of the application |
| 2 | Sign Up | If the user chooses to sign up from the main menu, this view appears allowing the user to sign up by entering his email and password |
| 2” | Verification | If the email and password are valid, this view appears informing the user that a verification code has been sent to his email and that he should enter it |
| 3 | Personal Information | If the verification code matches, this view occurs allowing the user to fill in his personal information and chooses if his account will be an owner’s account or a player’s account |
| 4 | Owner View | If the owner chooses to be an owner and signs in, this view occurs allowing the user to choose between several options which are adding a playground, viewing current booked playgrounds, and accessing his eWallet |
| 5 | Add Playground | If the owner chooses to add a playground, this view occurs and allows the owner to fill his playground’s specifications |
| 6 | Add Playground Continued | This is a continuation of the previous view where the owner fills in his playground’s available time slots with dates and time, he could add several available time slots |
| 7 | Player View | If the user chooses his account to be a player’s account and signs in this view occurs allowing the user to choose between 11 different options |
| 8 | Player View Continued | A continuation of the Player’s main menu view. |
| 9 | Filter Playgrounds | If the player chooses the filter playgrounds using time slots, this view occurs allowing the user to choose the available playground that is available in his desired time and date |
| 10 | Booking a playground | If the player chooses to book a playground, this view occurs allowing the player to book by entering the number of the playground and the desired date and time |
| 11 | eWallet | The eWallet view could be accessed by both an owner and a player, this view allows the user to choose between several options including depositing and withdrawing by entering amount of money desired and viewing the current balance |
| 12 | Administration Panel | This view is restricted to Administrators only who have specific username and passwords. If the admin signs in using the correct username and password, this view occurs allowing admin to choose from several options like deleting a playground, viewing all playgrounds, and registering un-registered playgrounds because playgrounds can only be available if approved by the administrator. |
|  |  |  |

# Tools

* **LucidChart : Used in the UML Class Diagram and Sequence Diagrams**
* **Just in mind: Used to create the UI mockups**

# Ownership Report

|  |  |
| --- | --- |
| **Item** | **Owners** |
| Part of Class diagram and Part of GoFo implementation | Mahmoud Mohamed Abdelazim |
| Part of GoFo implementation and Class diagram | Ahmed Alaa Eldin |
| Part of GoFo implementation and part of sequence diagrams | Amr Bumadian |
| UI designs and part of GoFo implementation | Ziad Amr |
| UI designs and part of sequence diagrams | Eslam Fawzy |

# References

* <http://www.mhhe.com/engcs/compsci/pressman/graphics/Pressman5sepa/common/cs1/design.pd>
* Mockups (<https://moqups.com/>).
* How to use Moqups <https://www.youtube.com/watch?v=glijkZFo4AY>
* Example wireframes and designs (you can contact the author for questions) <http://malakumar.com/wp-content/uploads/2018/12/MalaKumar_SampleWireframes-1.pdf>

# Appendix A: Code Listing and Screen Snapshots

* **Write here ALL your code using bold single-spaced courier new size 11 font.**
* **Use proper indentation. Separate each class from the next one by a line.**
* **Add screen shots of how your program works.**
* **Put a link to your private repo on GitHub where the code is and your login information**
* **Put a link for a Google drive where you have a second copy of the code and you share it with m.elramly@fci-cu.edu.eg**

# Authors

* Mostafa Saad and Mohammad El-Ramly (Edited by Mohamed Samir) (V1.0)
* Updated by Mohammad El-Ramly (V2.0)