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## Group assignment 4: Refined OO model

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# 1 Introduction

In this document there's the class diagram for group F2a. Group members are: Einar Helgi Þrastarson (personal ID number: 110287-2919), Hannes Pétur Eggertsson (240889-2939) and Sigurður Birkir Sigurðsson (120589-2539). Our project is to build an user interface for a fantasy football game. In our class diagram we felt it made sense to split the classes into two categories, back-end classes and front-end classes. Then, in a third diagram there's another diagram that shows the connections between the back-end and We will all present this document on Wednesday, March 4th 2015.

## 1.1 Notation

In our class diagrams we use the following notation:

- means a private variable or method (not directly accessible by other classes).
- + means a public variable or method (directly accessible by other classes).

Each class in the diagram has four sections shown below:

<i>The class' name.</i>
Short description of the class.
The class' variables and their type listed on the format: -/+ <b>type1</b> <b>variable1</b> -/+ <b>anotherClass</b> <b>variable2</b>
The class' methods listed on the format: -/+ <b>type1</b> <b>method1(type variable,...)</b> -/+ <b>type2</b> <b>method2(...)</b>

If the class wasn't created by us it is filled with red. Back-end classes are green and front-end classes are yellow. Classes are interconnected using arrows:

Class A  $\xrightarrow{\text{uses}}$  Class B

In most cases we can tell how many classes 'Class A' and 'Class B' will be associated with, this is shown by placing an arrow at the beginning and end of an arrow, e.g.

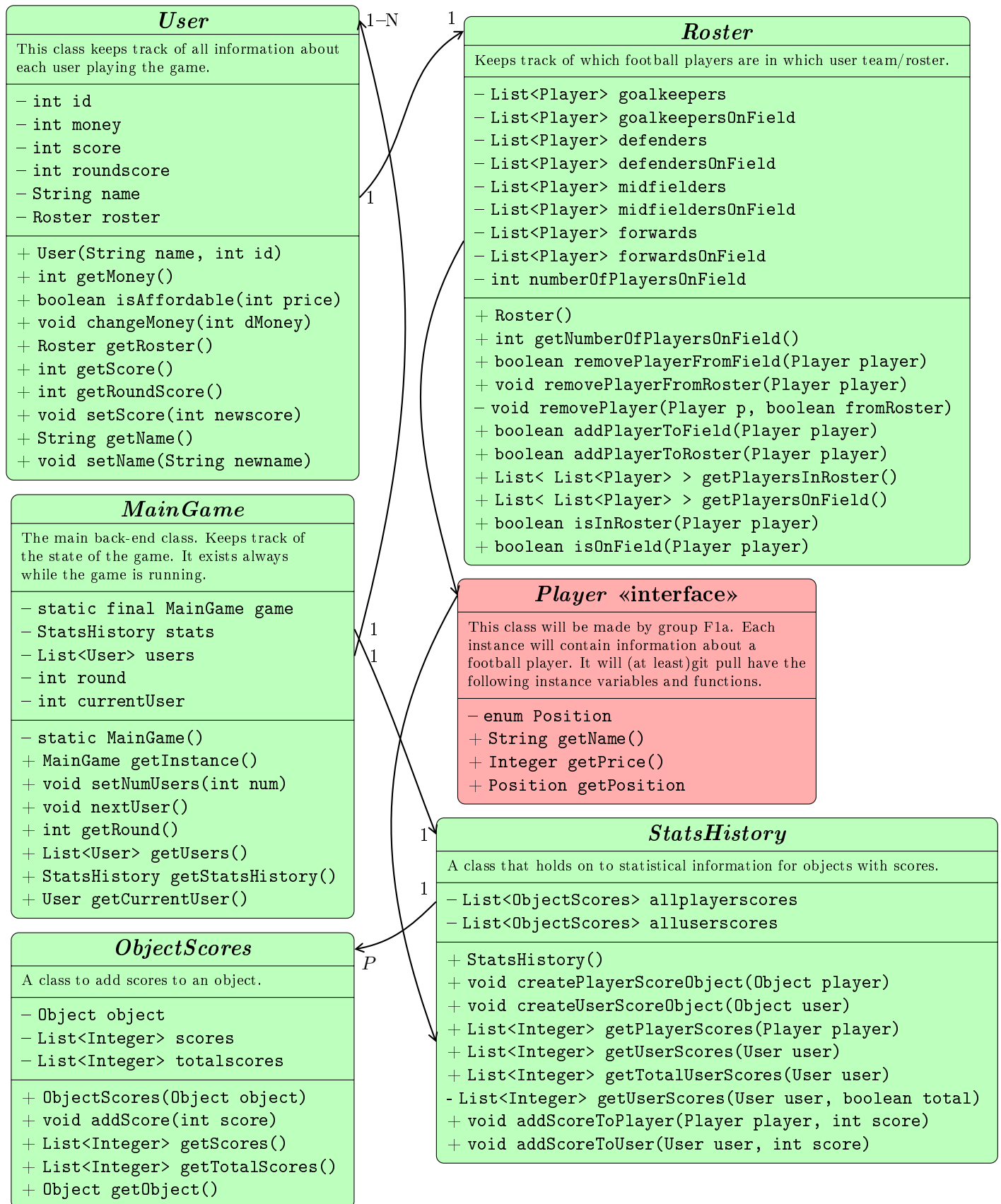
Class A  $\xrightarrow[0-10]{1 \text{ uses}}$  Class B

if each instance of 'Class A' will use 'Class B' in a range of 0 to 10 instances. If no numbers are shown it generally means the association is 1 uses 1.

## 2 Class diagram

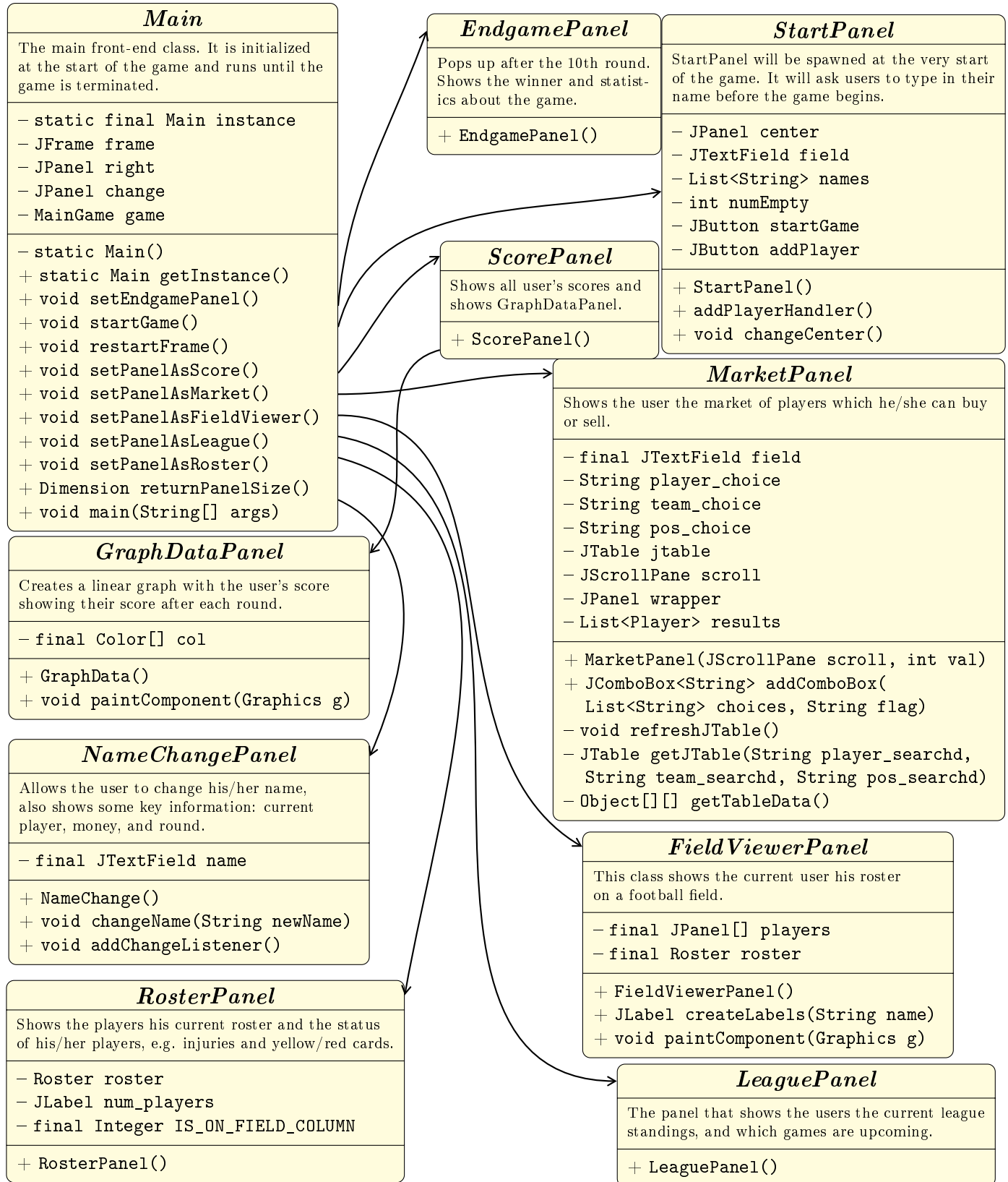
We decided to split our class diagram into two figures: **Back-end classes** and **Front-end classes**. The back-end classes take care of storing and keeping track of all information as the game is running. The front-end classes take care of displaying the information to the users playing the game as well as handling their input.

## 2.1 Back-end classes



$N$  is er number of total users in the current game and  $P$  is the total amount of football players in the game.

## 2.2 Front-end classes



Multiplicities are all 1:1.

### 2.2.1 Component classes

We are also using the following two component classes

<i><b>ButtonColumn</b></i>
Changes a single column of a JTable to buttons.
<ul style="list-style-type: none"><li>- JTable table</li><li>- Action action</li><li>- int mnemonic</li><li>- Border originalBorder</li><li>- Border focusBorder</li><li>- JButton renderButton</li><li>- JButton editButton</li><li>- Object editorValue</li><li>- boolean isButtonColumnEditor</li></ul>
<ul style="list-style-type: none"><li>+ ButtonColumn(JTable table, Action action, int column)</li><li>+ Border getFocusBorder()</li><li>+ void setFocusBorder(Border focusBorder)</li><li>+ int getMnemonic</li><li>+ void setMnemonic(int mnemonic)</li><li>+ Component getTableCellEditorComponent(JTable t, Object val, boolean selected, int row, int col)</li><li>+ Object getCellEditorValue()</li><li>+ Component getTableCellRendererComponent(JTable t, Object val, boolean selected, boolean focus, int row, int col)</li><li>+ void actionPerformed(ActionEvent e)</li><li>+ void mousePressed(MouseEvent e)</li><li>+ void mouseReleased(MouseEvent e)</li></ul>

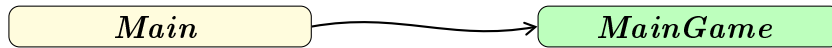
<i><b>CustomButton</b></i>
Our own custom button that implements JButton. Looks much nicer than the default Swing button.
<ul style="list-style-type: none"><li>- Color hoverBackgroundColor</li><li>- Color pressedBackgroundColor</li><li>- Color fontColor</li><li>- Color hoverFontColor</li></ul>
<ul style="list-style-type: none"><li>+ CustomButton()</li><li>+ CustomButton(String text)</li><li>+ Color getHoverBackgroundColor()</li><li>+ Color getFontColor()</li><li>+ void setFontColor(Color color)</li><li>+ void setContentAreaFilled(boolean b)</li><li>+ void setHoverBGColor(Color color)</li><li>+ Color getHoverFontColor()</li><li>+ void setHoverFontColor(Color color)</li><li>+ Color getPressedBGColor()</li><li>+ void setPressedBGColor(Color color)</li><li>+ void paintComponent(Graphics g)</li></ul>

## 2.3 Connections between front-end and back-end classes

There are a number of connections between back-end and front-end classes that the previous diagrams could not show. These connections will be shown here.

### 2.3.1 Main

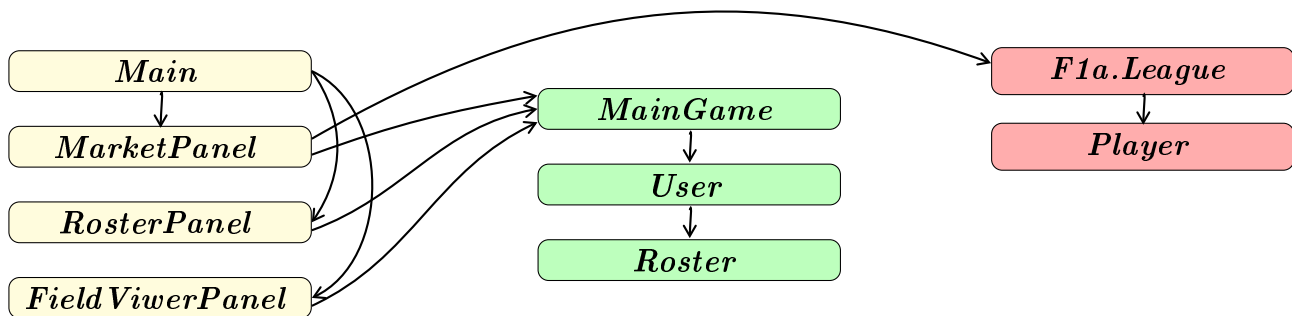
When the game starts, MainGame gets an instance of MainGame.



### 2.3.2 MarketPanel, RosterPanel, and FieldViwerPanel

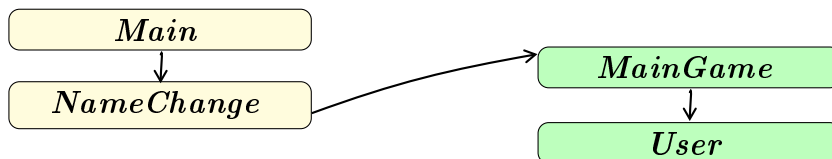
MarketPanel needs to get all teams from a class group F1a will create. That class will return to the MarketPanel all the Teams (and therefore all Player objects). MarketPanel will also need to get the current user roster to determine which player the user owns and which he does not own. It can do that through the MainGame class just as the diagram below shows. This connection will be shown more clearly in one of our sequence diagrams.

Similar to the MarketPanel, the RosterPanel and FieldViwerPanel also need to get the current roster.



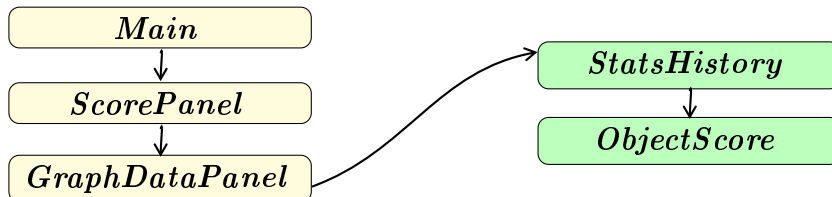
### 2.3.3 NameChangePanel

The NameChangePanel is associated with the User class in case of the user changes his/her name. It also gets some information about the user's current money and the current game's current round.



### 2.3.4 ScorePanel and GraphDataPanel

GraphDataPanel needs data from the StatsHistory to draw the graphs. ScorePanel will display this graph as well as the score for each user.



### 3 Sequence diagrams

#### 3.1 MarketPanel

The sequence diagram below shows a typical sequence for when a user opens the MarketPanel. The MarketPanel will need to 1) Get all teams and players from group F1a and 2) get the roster of the current user. After gathering the data the MarketPanel will display a nice looking table for the user where he can buy/sell players with the help of some useful filters if he/she desires to.

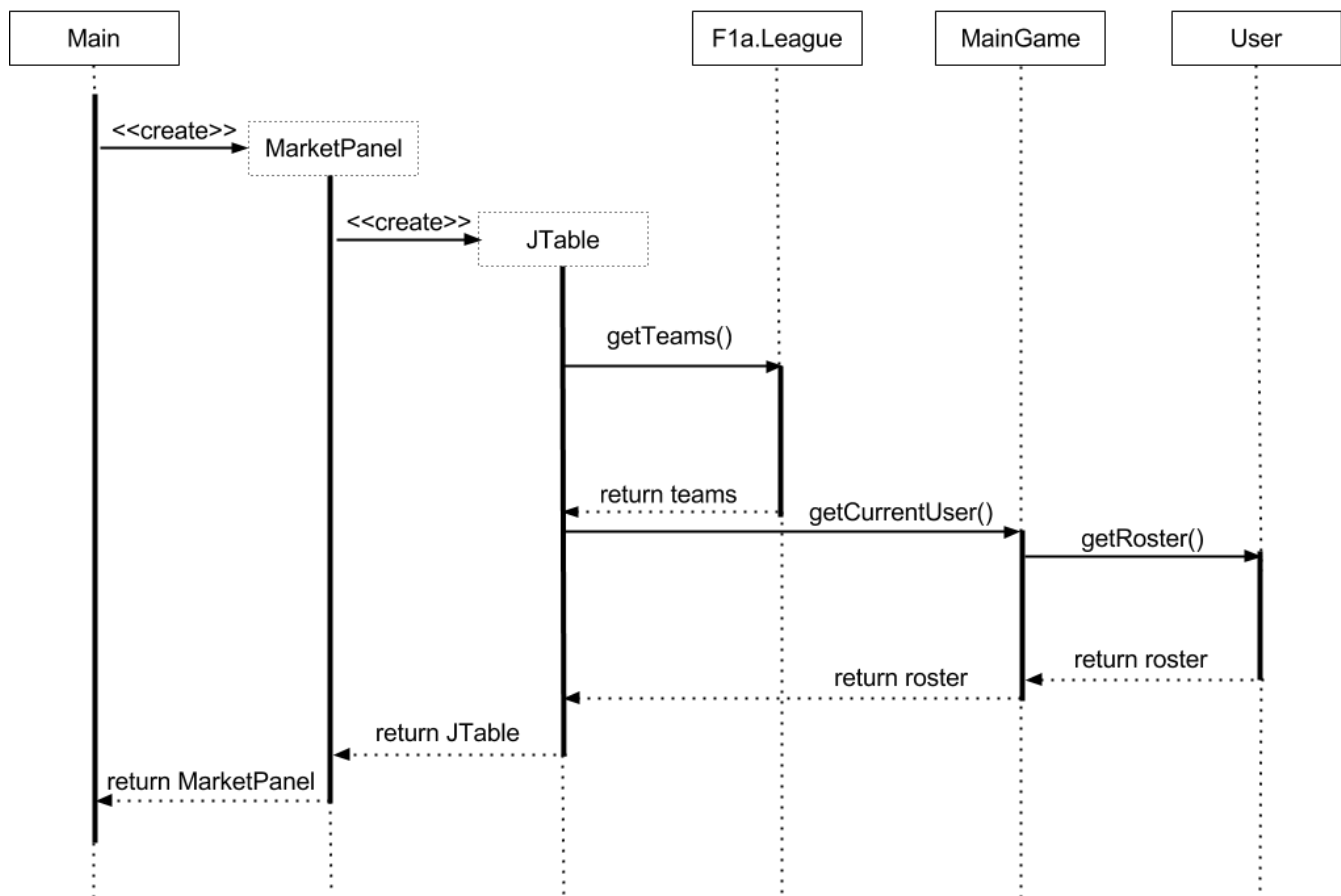


Figure 1: MarketPanel sequence diagram.

## 3.2 LeaguePanel

The sequence diagram below shows how we expect the typical sequence to be when the user opens the LeaguePanel to get information of the current league standings and which football games are upcoming. First it will gather all teams from League class created by group F1a and then get all the games from that same class. Our job is then to make this data look nicely for the user.

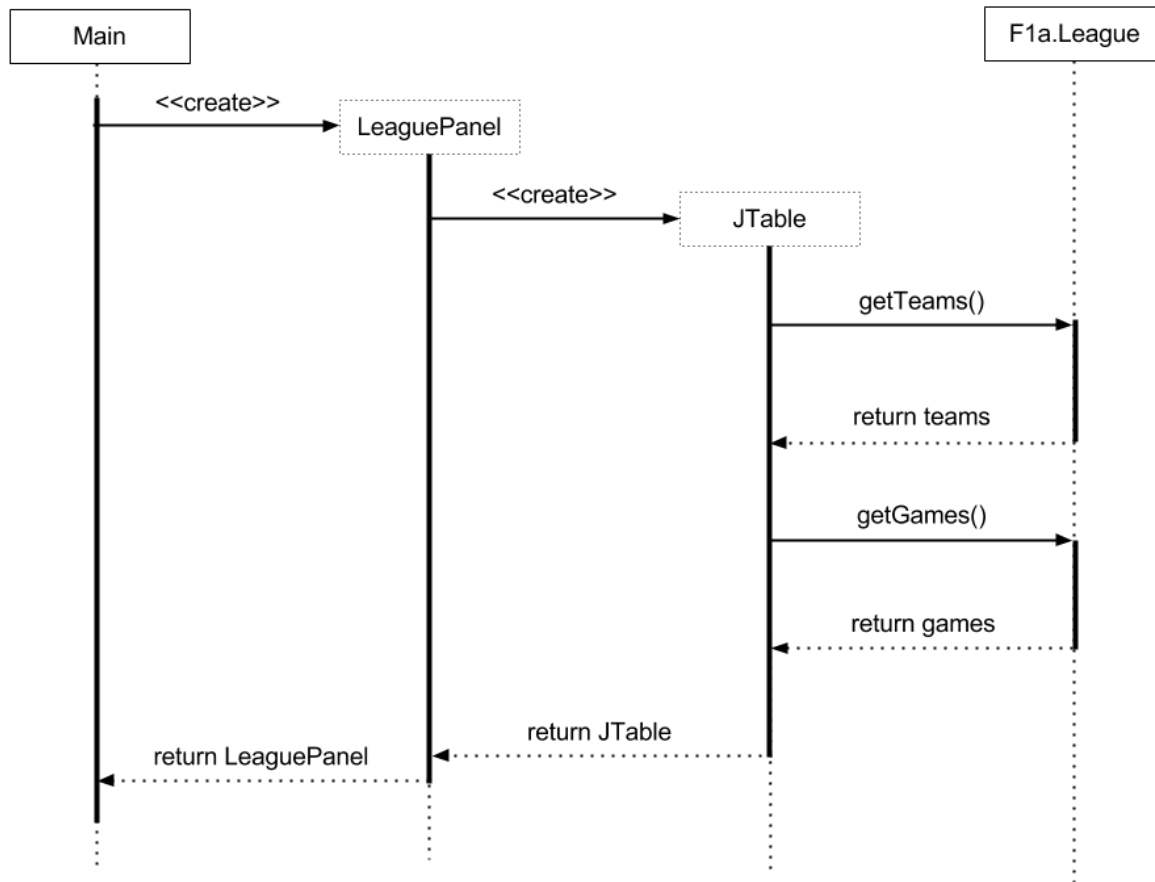


Figure 2: LeaguePanel sequence diagram.