



TCP2201 Object Oriented Analysis and Design
Trimester 1, Year 2020/2021

By Team Hungary

Webale Chess Project

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1.0 Introduction

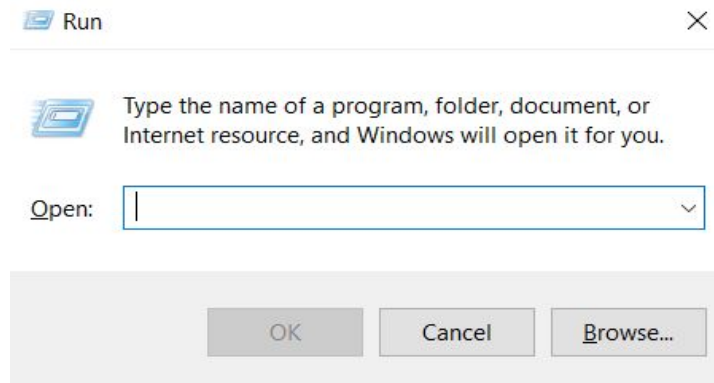
This documentation is regarding a Java GUI-based Webale Chess game. This documentation can be divided into four parts. The four parts are User Guide, Class Diagram, Use Case Diagram and Sequence Diagram. The details of each part is documented properly.

2.0 User Guide

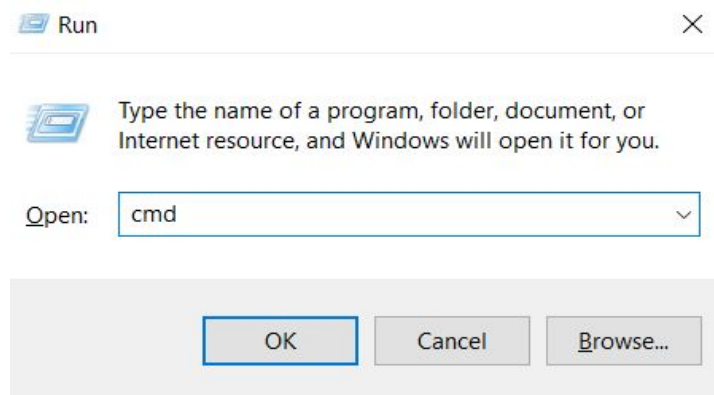
Remarks: We are using Javafx to develop our webale chess program.

2.1 How to Compile and Run the Program?

Step 1: For Windows users, press the shortcut key "Windows+R".



Step 2: Enter "cmd" and click OK.



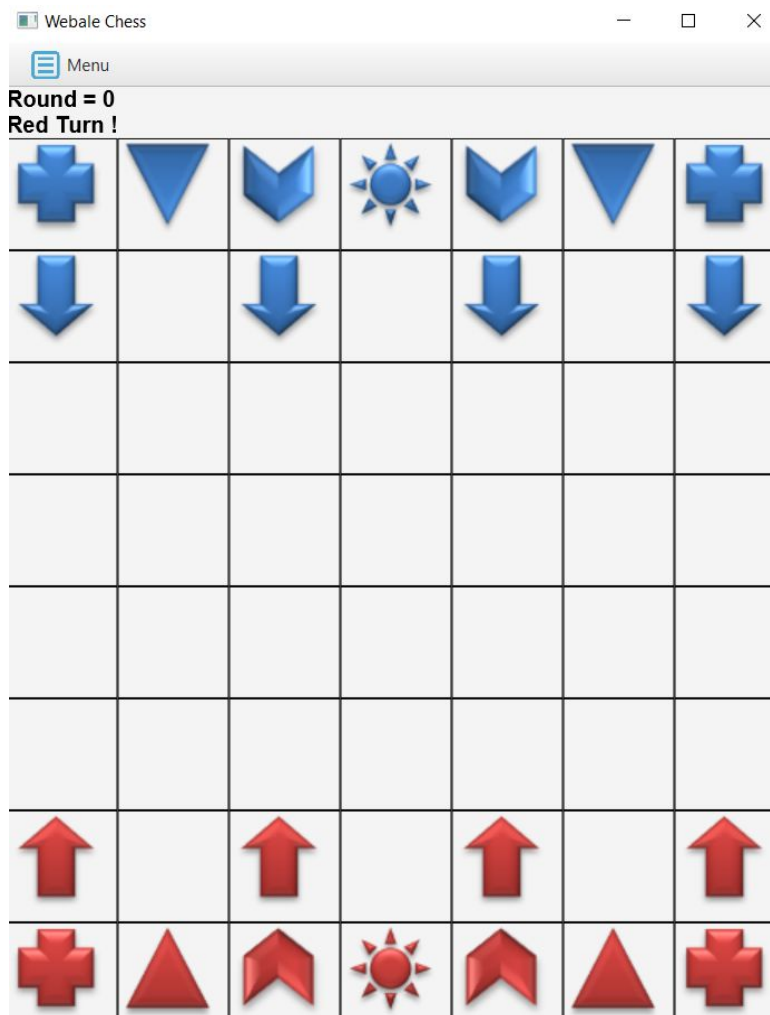
Step 3: The command prompt window will show up. Now, go to the file directory where all your files are located, by entering the command "`cd your_file_directory`". In this case, the file directory is Hungary_WebaleChess. Therefore, the command is "`cd Hungary_WebaleChess`".

```
D:\>cd Hungary_WebaleChess
D:\Hungary_WebaleChess>
```

Step 4: After switching to the correct file directory, compile all the java files using the command "javac *.java". Then, run the main class file "WebaleApp.class" by entering the command "java WebaleApp".

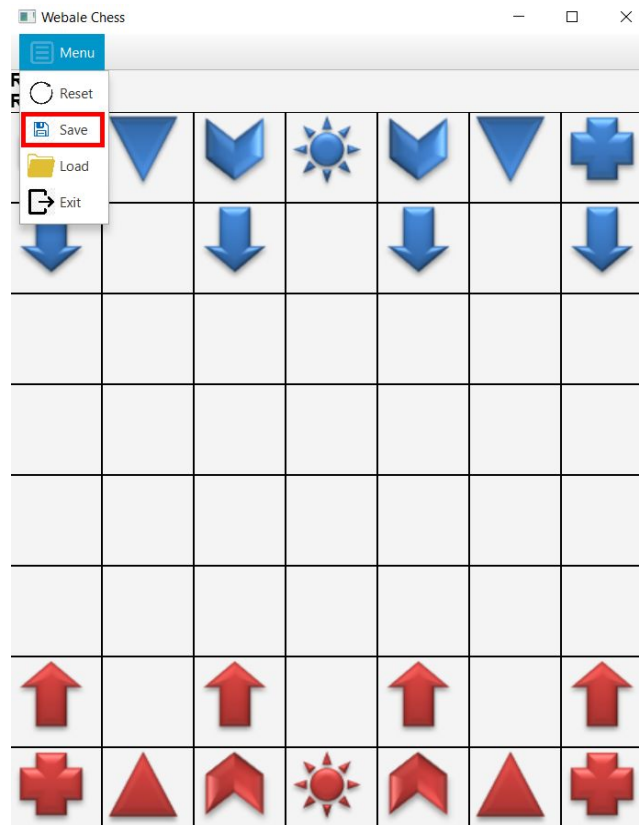
```
D:\>cd Hungary_WebaleChess  
  
D:\Hungary_WebaleChess>javac *.java  
  
D:\Hungary_WebaleChess>java WebaleApp
```

Step 5: The chess game window will show up and you may start playing by dragging the pieces to your preferred destination.

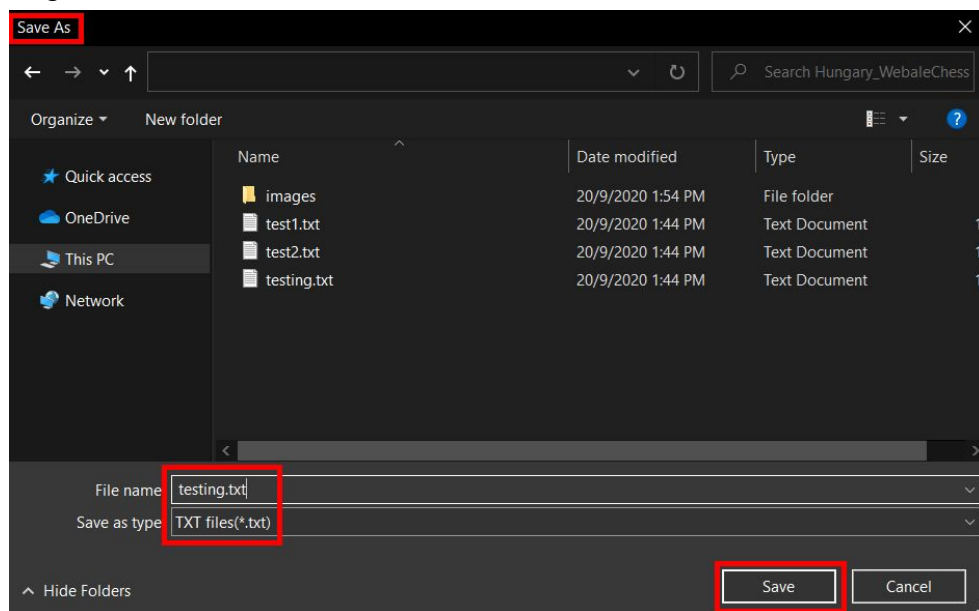


2.2 How to Save the Game File?

Step 1: Click the "Menu" button on the menu bar and select "Save".

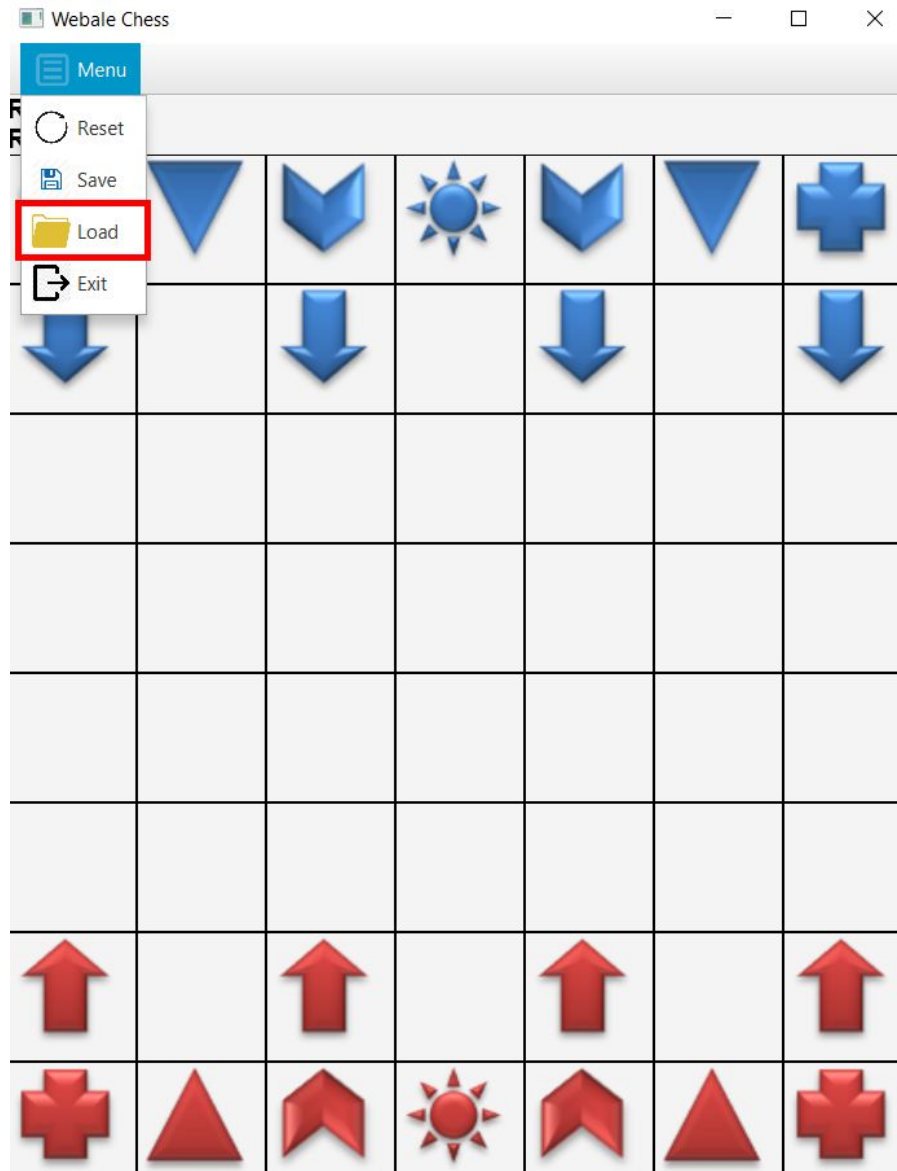


Step 2: The Save File dialog box will show up. Choose the file location that you wish to save your game data file, the file should be in the ".txt" format. In this case, the file is "testing.txt". After that, click on "Save".

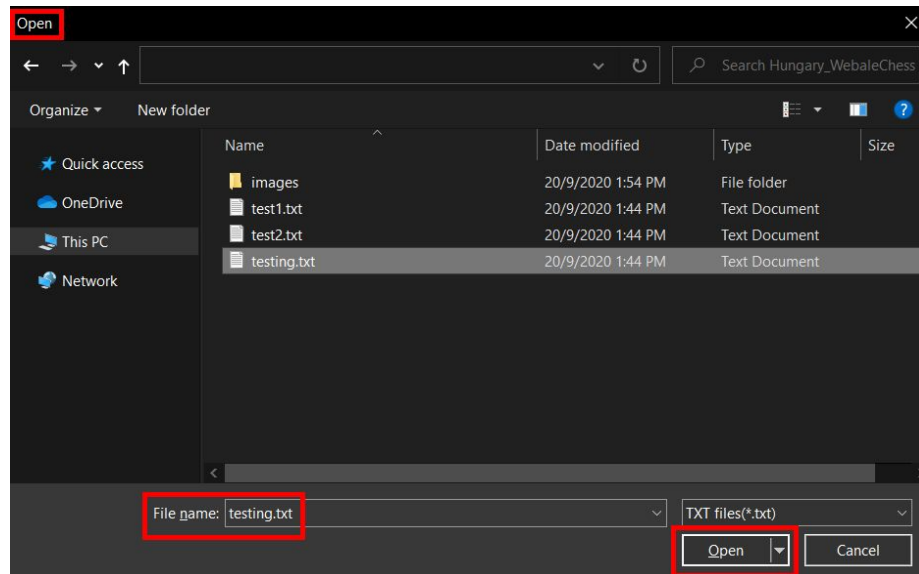


2.3 How to Load the Game File?

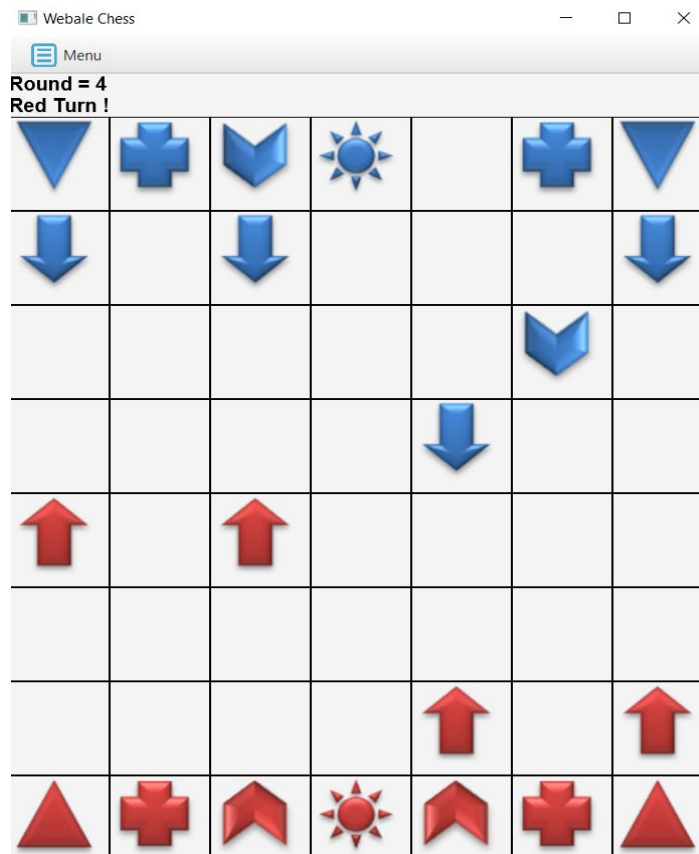
Step 1: Click the "Menu" button on the upper left corner and select "Load".



Step 2: The Open File dialog box will show up. Choose the file that you saved earlier, the file should be in the ".txt" format. Select the game data text file which you wish to load. In this case, the file is "testing.txt". After that, click on "Open".

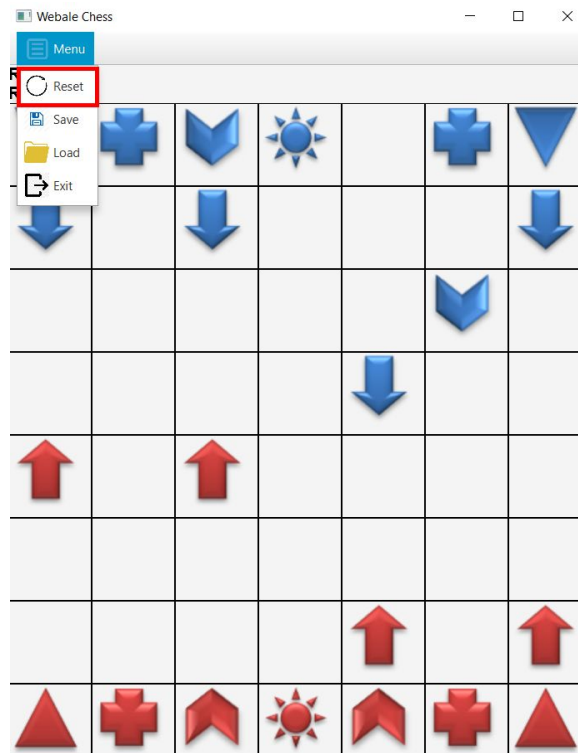


Step 3: After the game file is loaded, you may continue playing the saved chess game.

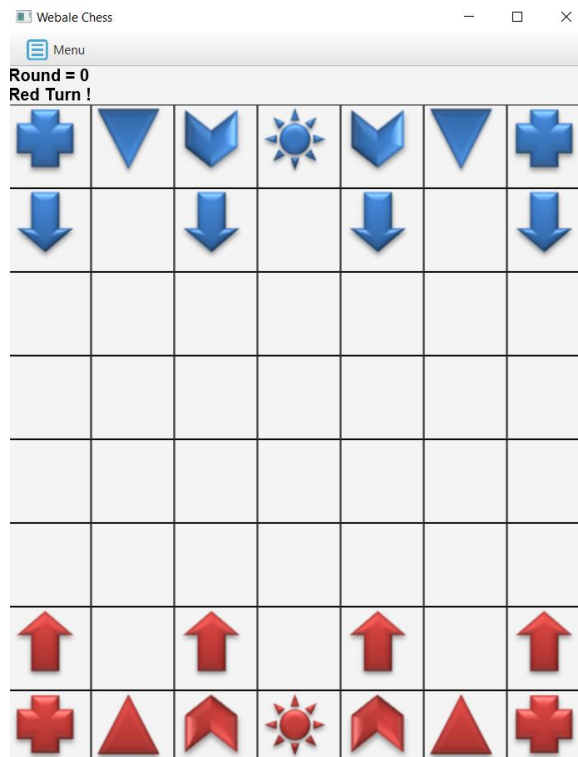


2.4 How to Reset the Game?

Step 1: Click the "Menu" button on the upper left corner and select "Reset".

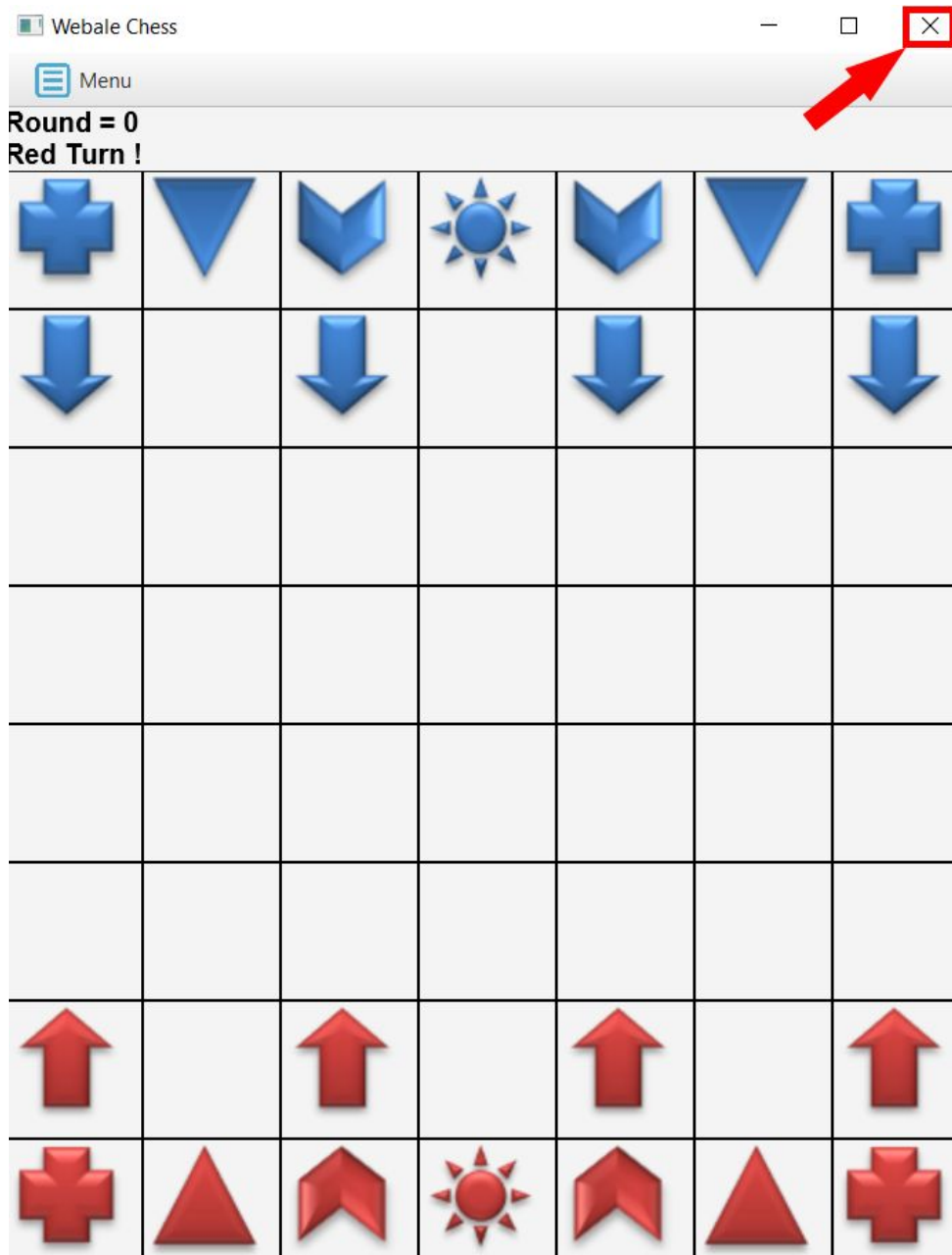


Step 2: The game is reset and you may start playing a new game again.

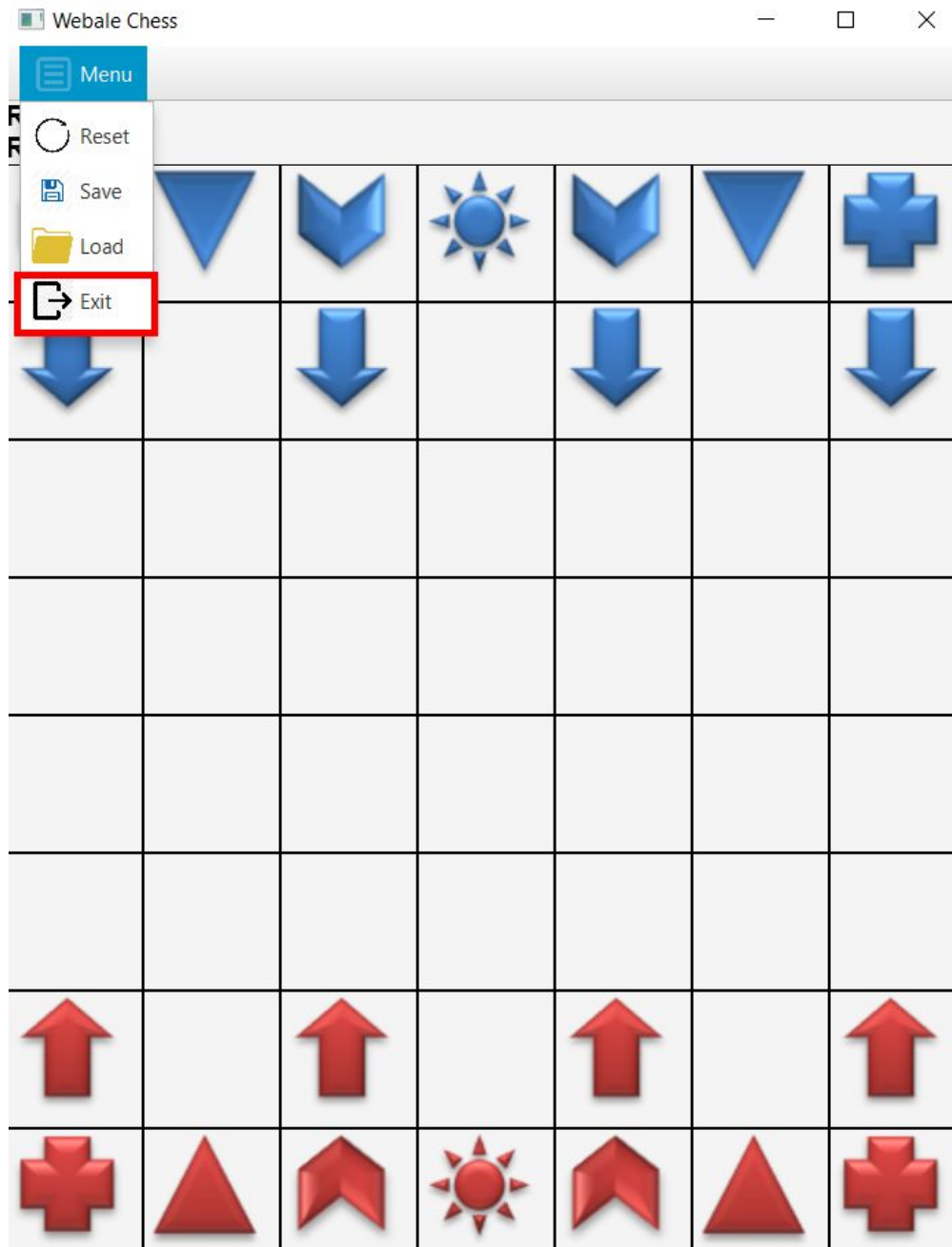


2.5 How to Exit or Stop the Program?

Method 1: Click on the "X" button on the top right corner.

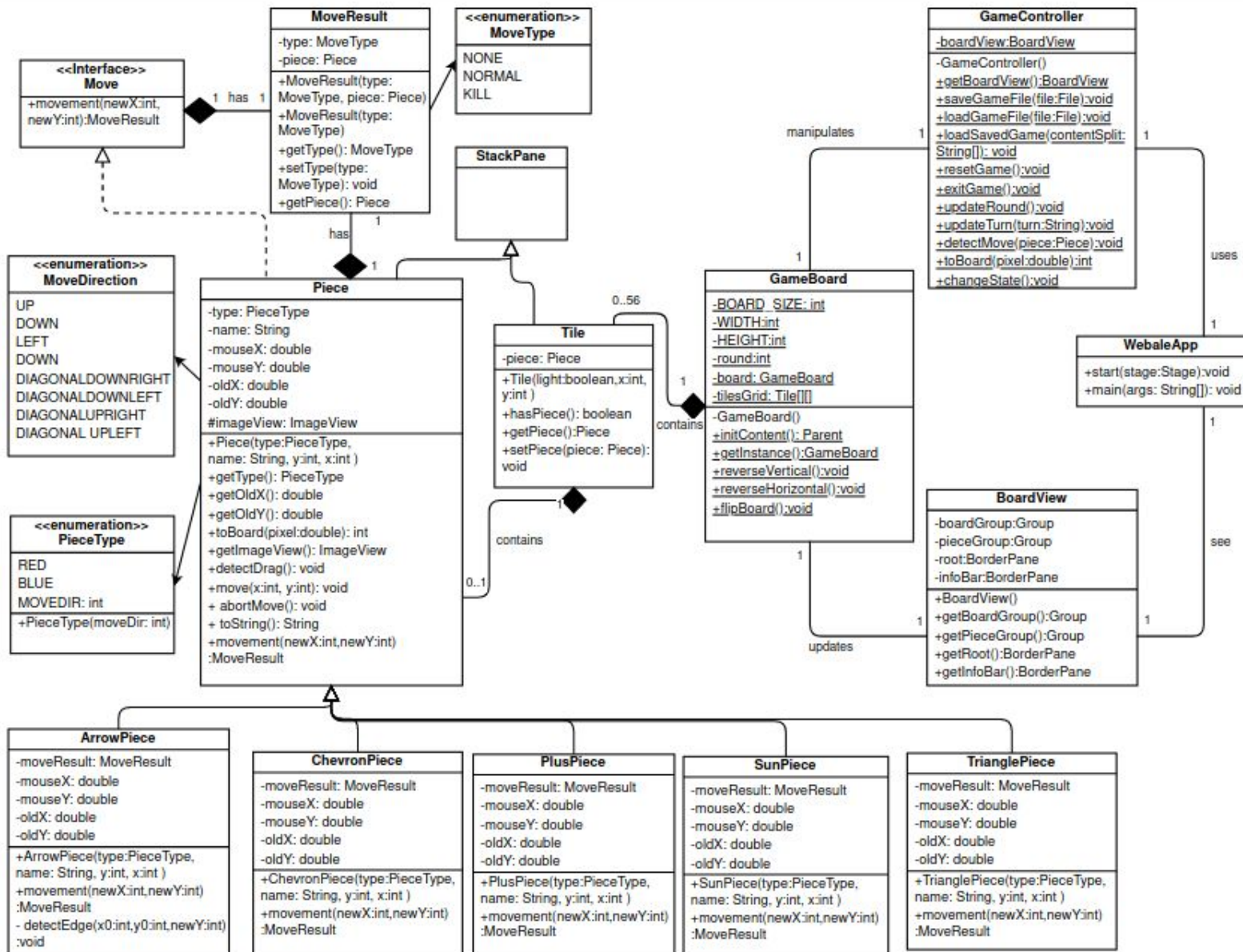


Method 2: Click the "Menu" button on the menu bar and select "Exit".



Method 3: For Windows users, switch to the command prompt window and press the shortcut key "Ctrl+C".

3.0 Class Diagram



We used a few design patterns in our Webale Chess Application. The first one is MVC design pattern. As u can see, BoardView class is the view class which visualizes the pieces,board and the movement of pieces. GameBoard class is the Model part of MVC design pattern. Moreover, the BoardController is the controller part of the MVC design pattern, it controls how the data flows into the gameboard and updates BoardView whenever the piece changes.

Besides MVC, we also use the singleton design pattern. For example, the GameController has only one game board hence it only needs one GameController. The class has a private constructor hence no other instantiation of GameController is allowed. Furthermore, the GameBoard is also built using a singleton design pattern to ensure that there is only one gameboard being declared every single game. The constructor of the class is private, hence, no other instantiation of the class is allowed.

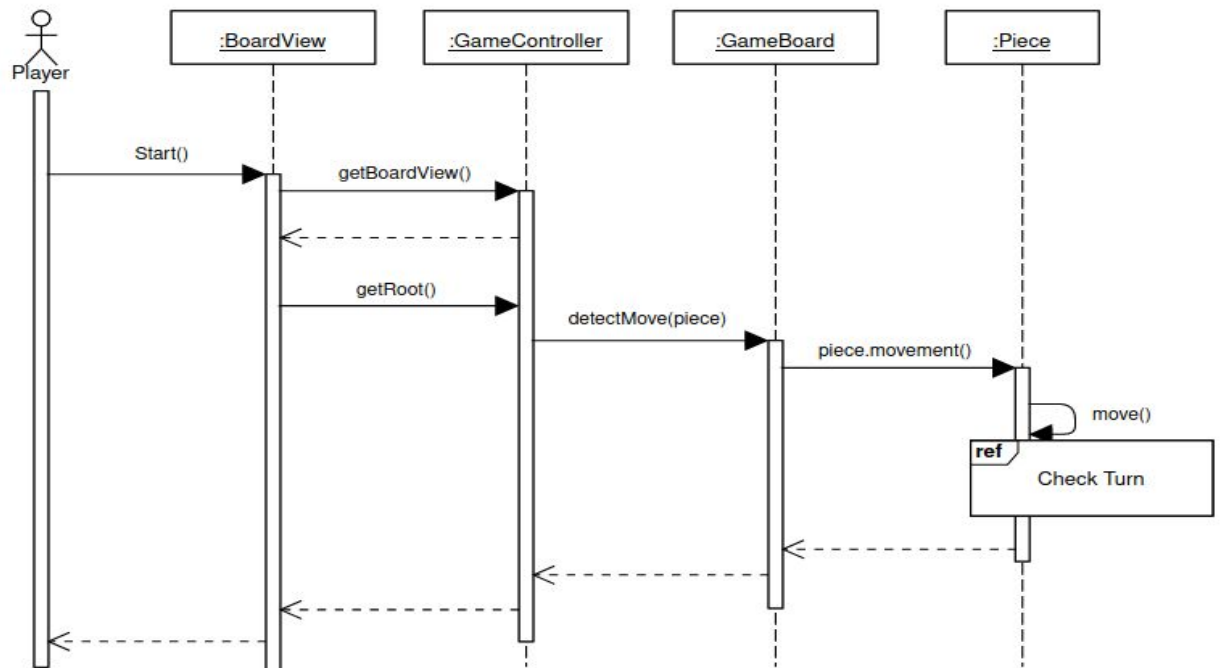
Lastly, we implemented the strategy design pattern at our pieces. All types of pieces (Plus, Triangle, Sun, Chevron, Arrow) extend from the piece class which implement the move interface. Different types of pieces will further override the movement method as the ways of how they move is different in webale chess.

4.0 Use Case Diagram

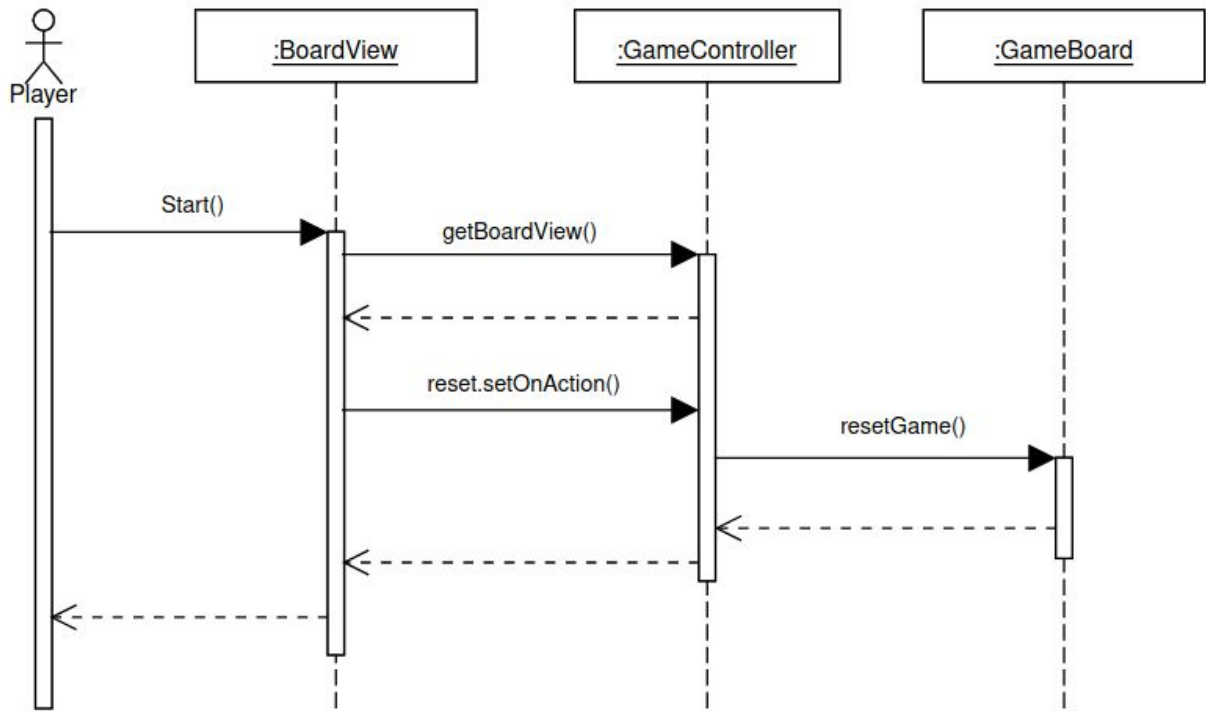


5.0 Sequence Diagram

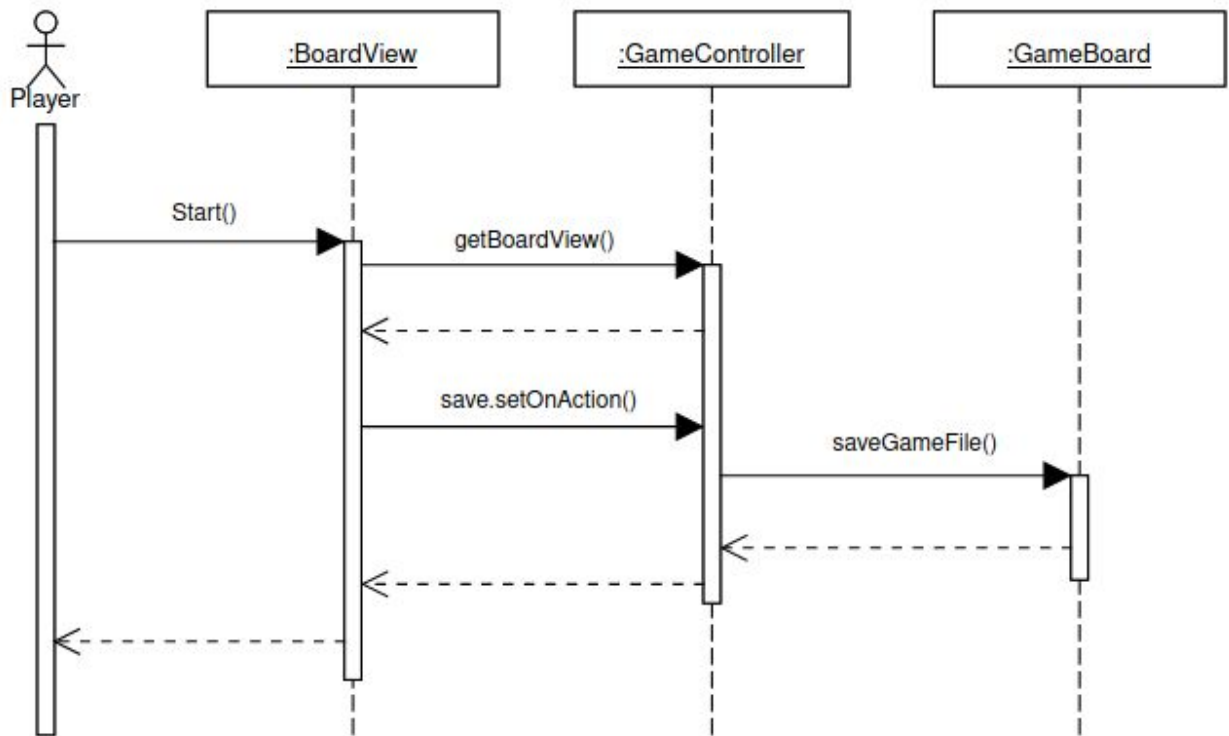
5.1 Move Piece



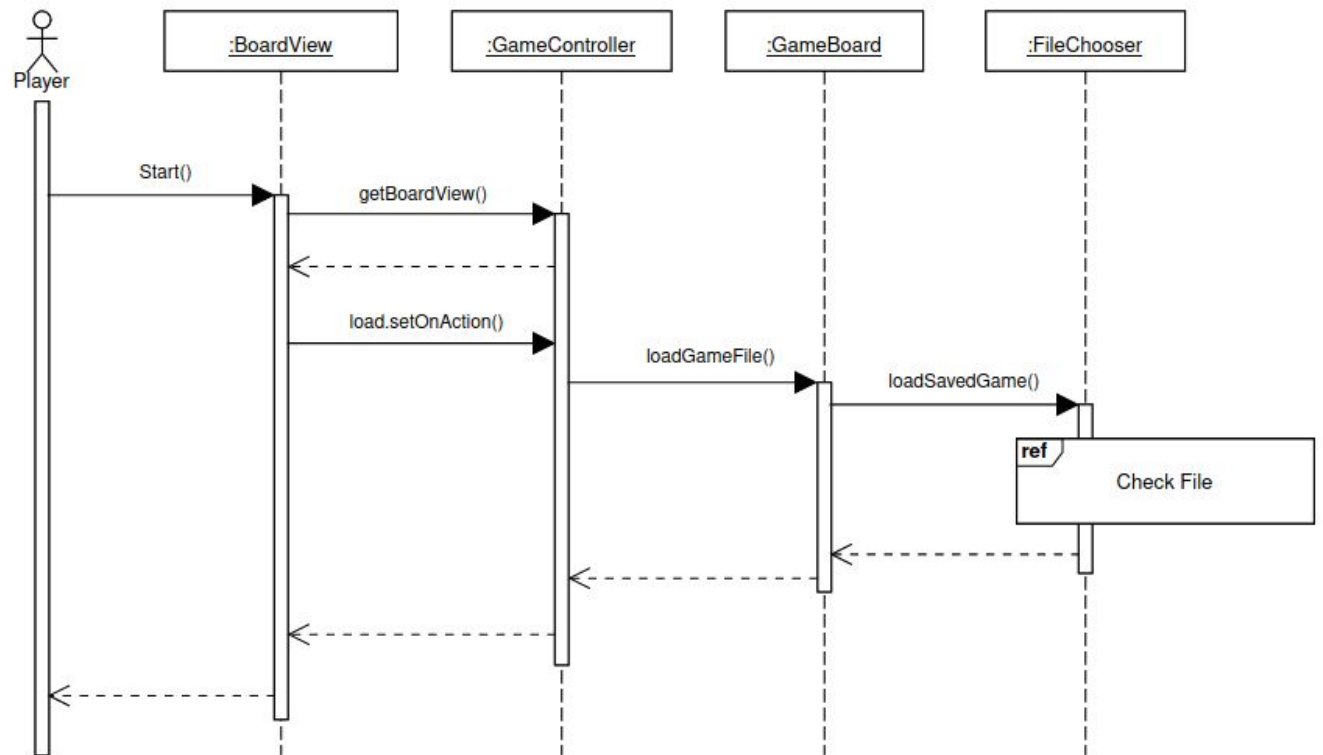
5.2 Reset Game



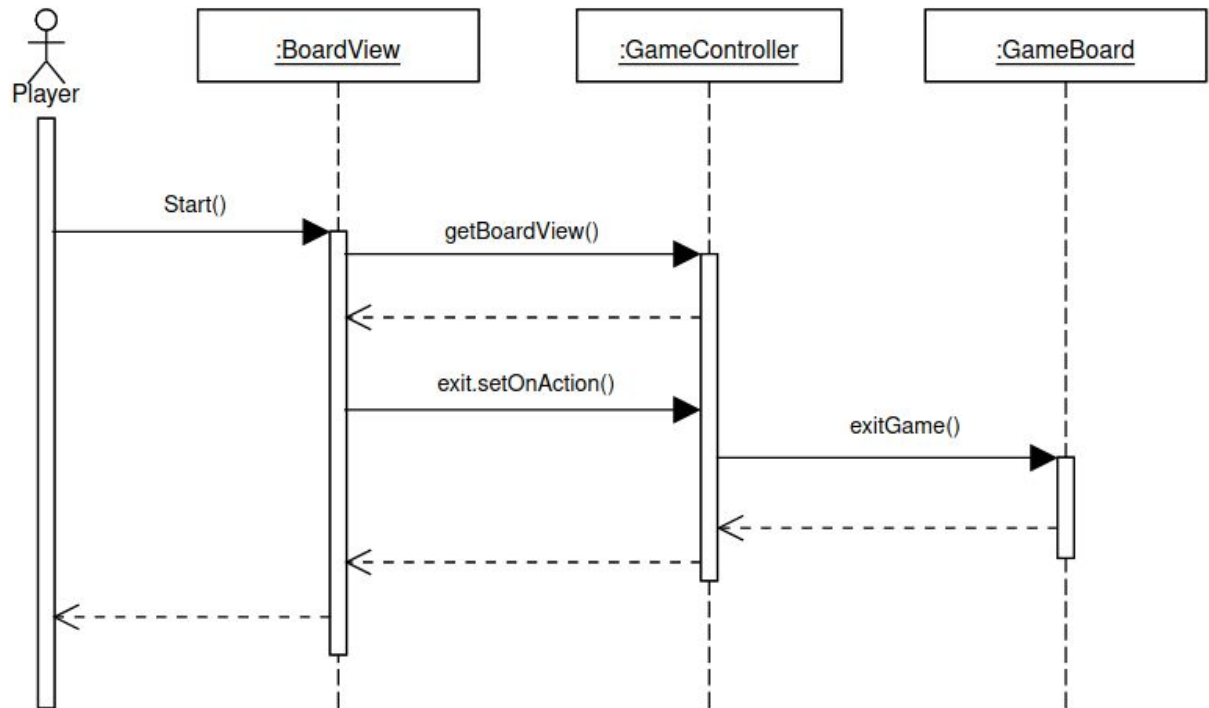
5.3 Save Game



5.4 Load Game



5.5 Exit Game



5.6 Resize Window

