Deliverable #3 Template

SE 3A04: Software Design II – Large System Design

March 20, 2021

1 Introduction

1.1 Purpose

a) The purpose of this document is to provide an overview of the system by using state charts for controller classes, sequence diagrams, and the detailed class diagram. State charts will express the jobs for each controller class and graphically state the functionalities and different states of the components in this system. Sequence diagrams will depict the interactions among the classes in sequential order and visualize the messages send among the classes. The detailed class diagram will provide detailed information for each class of the system. The document will give readers a closer look at the components of the system and the relationships among them.

b) The intended audience of this document are the technical stakeholders of the game. This includes

1) The management team (Dr.Khedri, Thien Trandinh, and Andrew Le Clair)
2) The software developers and architects of this project (Abdullah, Mohinder, Namik, Gengyun, Junhong).
3) Future developers responsible for maintenance of the project.

1.2 System Description

The Treasure Island is a game in which users compete with each other to reach the treasure island. The user that reaches the treasure island first is the winner. Competition between users will be facilitated based on the user's performance in mini games.

1.3 Overview

The remainder of the this document is divided into 3 additional subsections and is organized as follows:

- Section 2: State Charts for Controller Classes - state charts for each controller class for the application.
- Section 3: Sequence Diagrams - sequence diagram for each use case of the application.
- Section 4: Detailed Class diagram - a detailed class diagram for the application.

Each of these sections is described using the appropriate textual and visual descriptions in order to convey design decisions and provide insight into the overall project.

2 State Charts for Controller Classes

This section provides a state chart for each controller class for The Treasure Island.

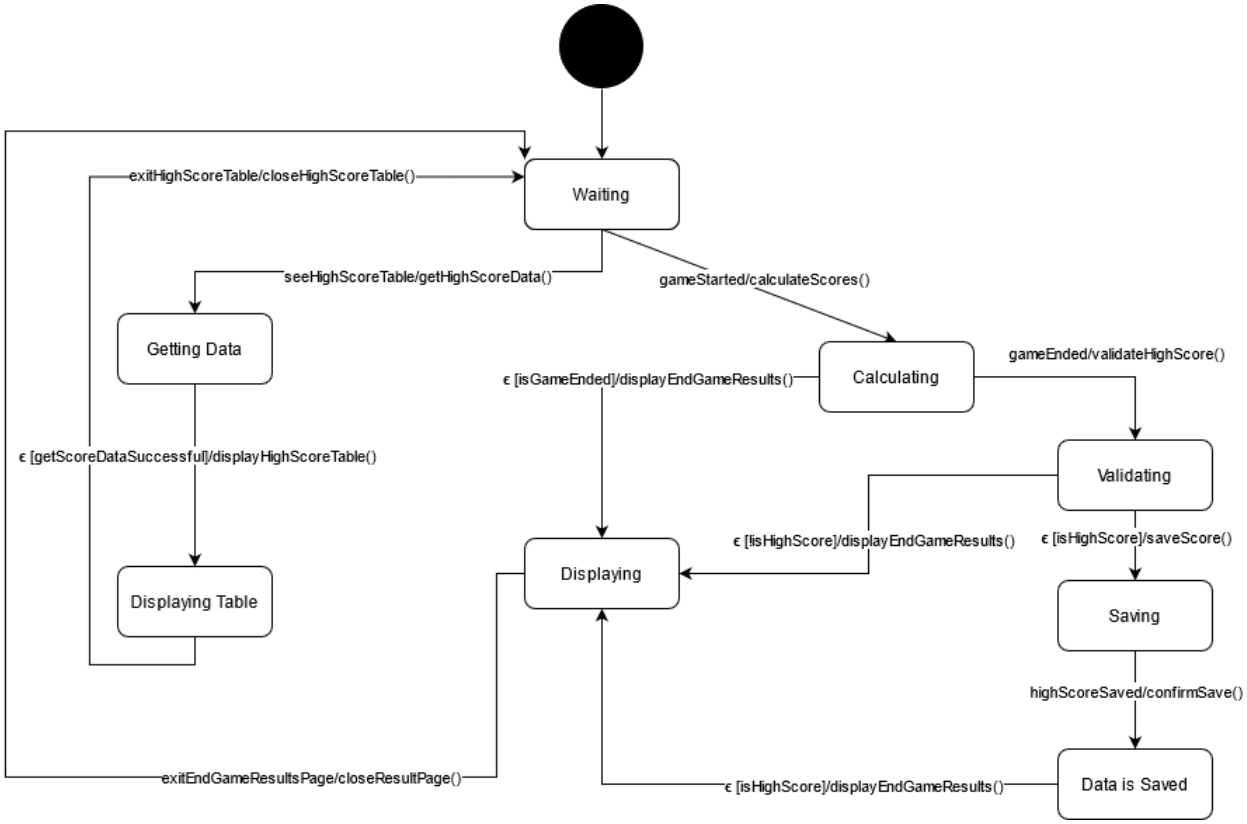

Figure 1: State Chart for Controller Class: Score Controller

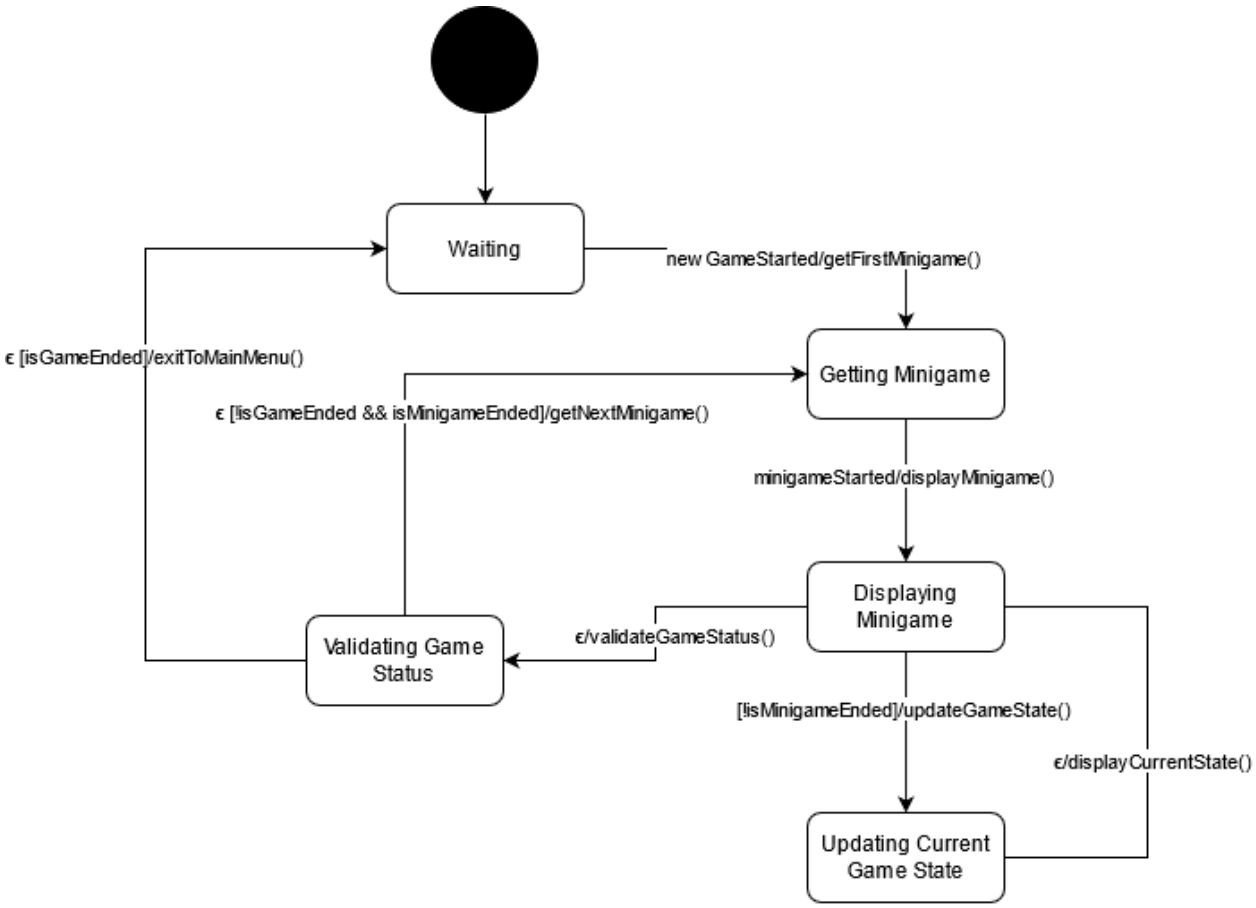

Figure 2: State Chart for Controller Class: Game Controller

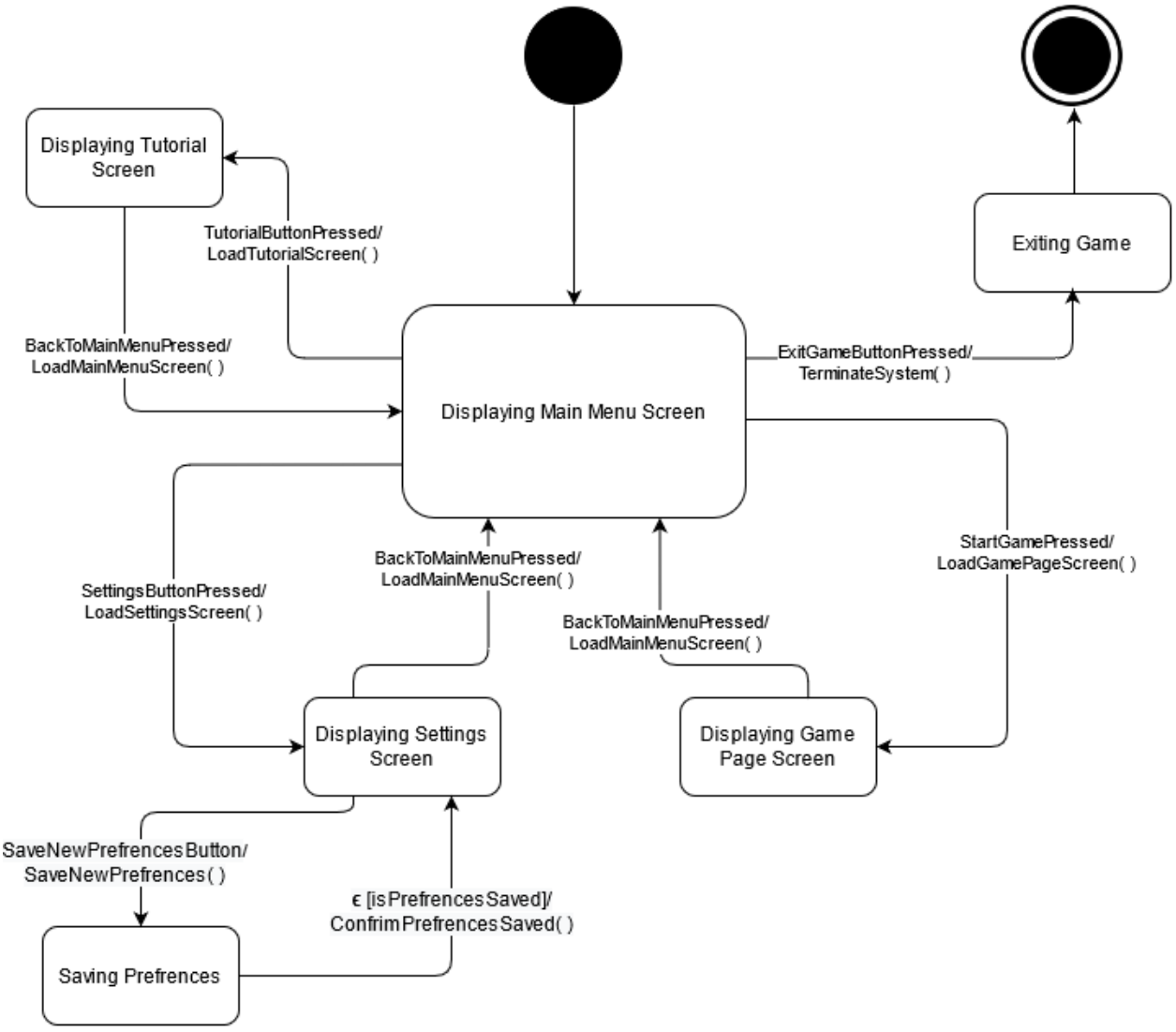

Figure 3: State Chart for Controller Class:

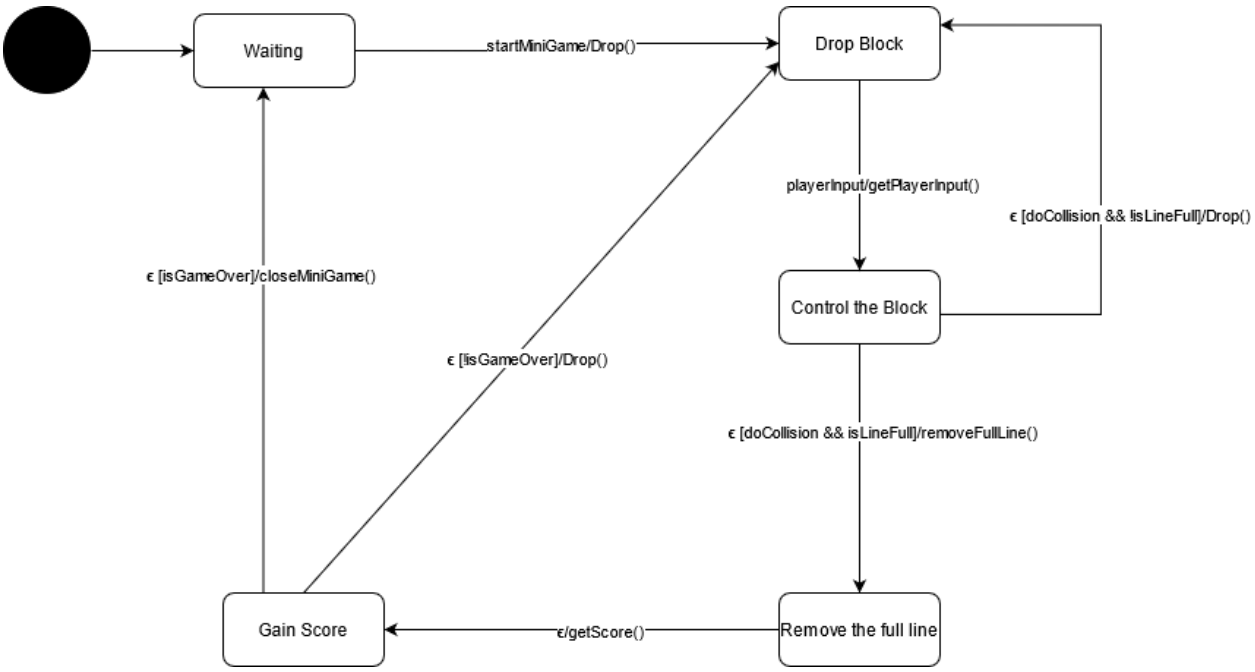

Figure 4: State Chart for Subsystem 1's Controller Class: Tetris Controller

Figure 5: State Chart for Subsystem 2's Controller Class: CarRace Controller

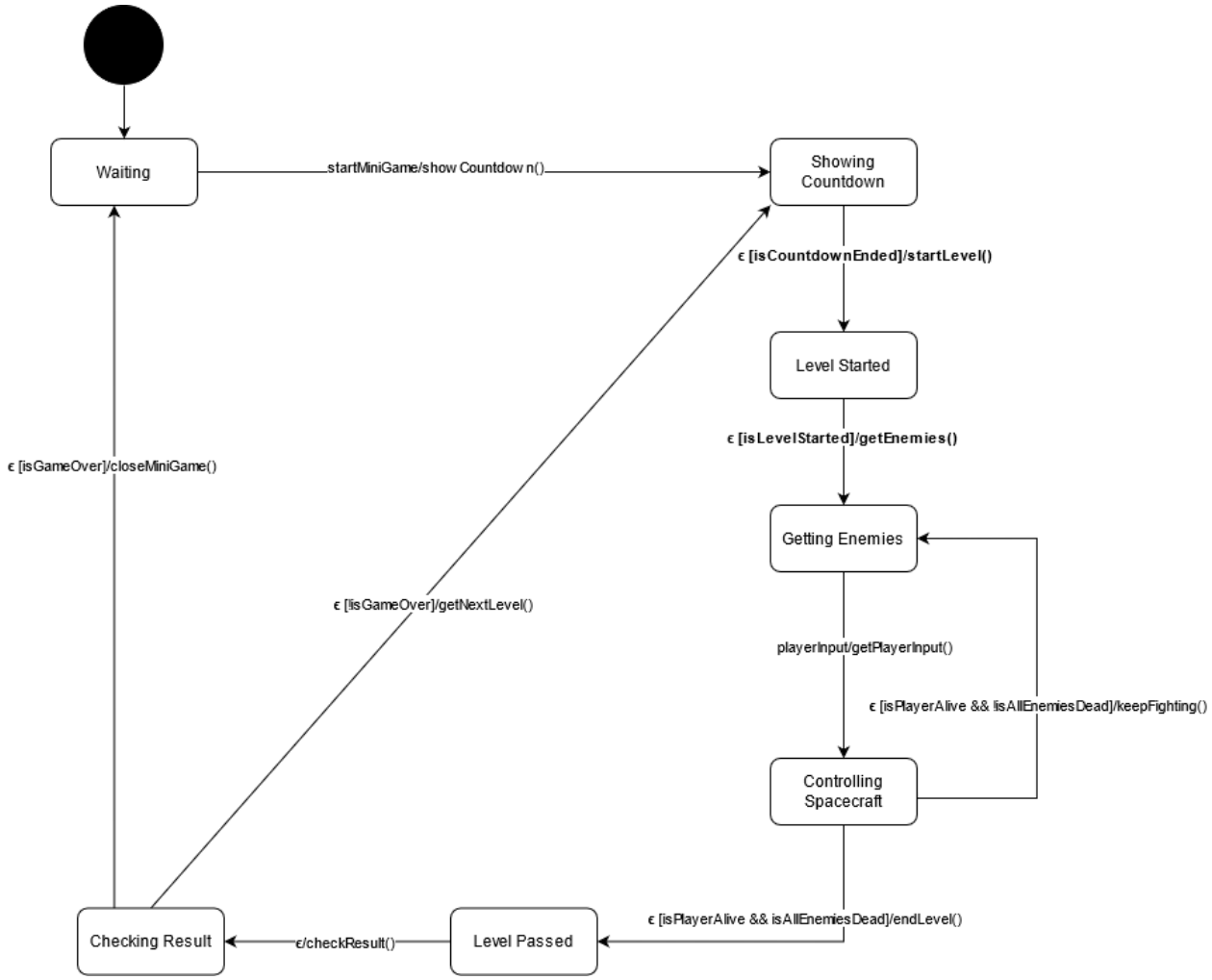

Figure 6: State Chart for Subsystem 3's Controller Class: SpaceShooter Controller

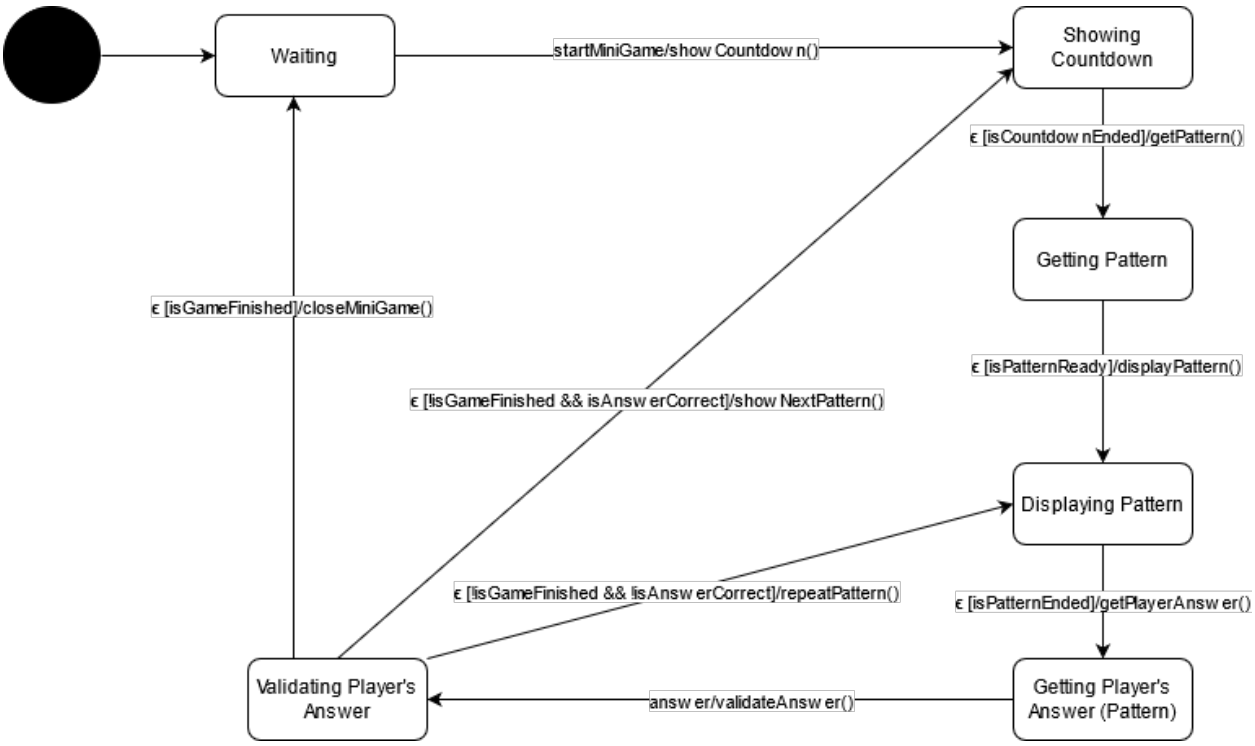

Figure 7: State Chart for Subsystem 4's Controller Class: PatternMatching Controller

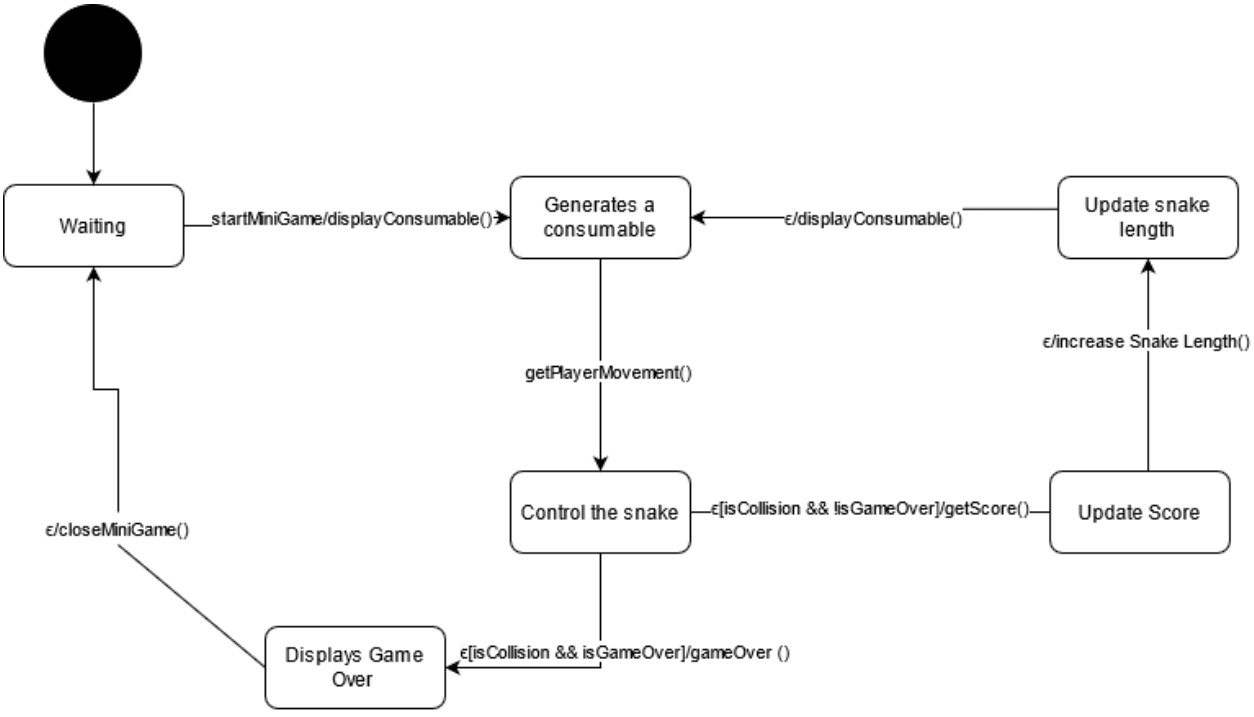

Figure 8: State Chart for Subsystem 5's Controller Class: Snake Game Controller

3 Sequence Diagrams

This section provides a sequence diagram for each use case of The Treasure Island.

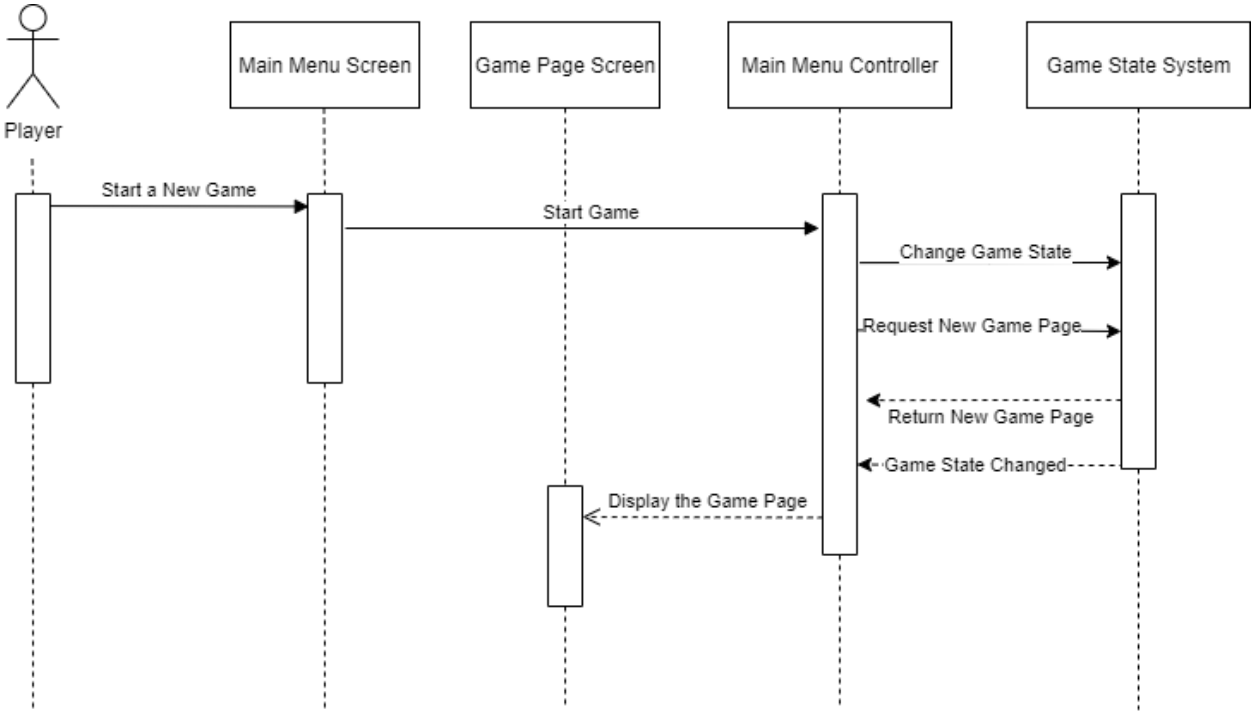

Figure 9: Sequence Diagram for Use Case A

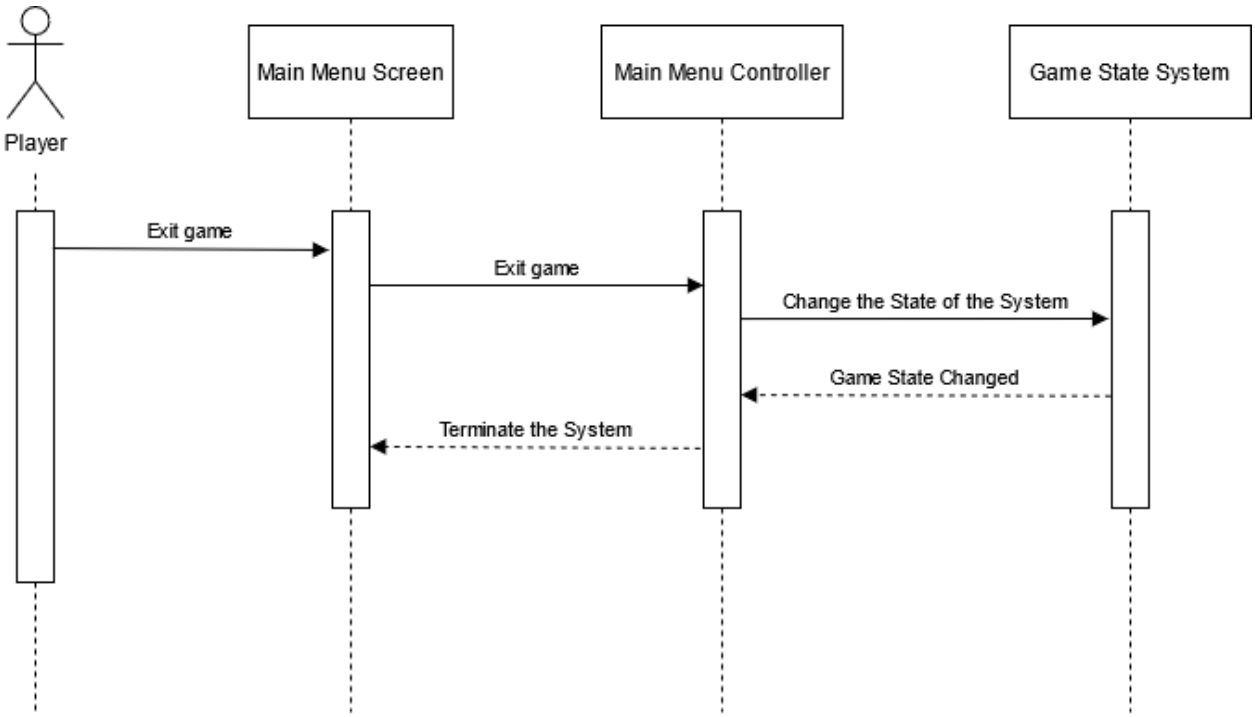

Figure 10: Sequence Diagram for Use Case B

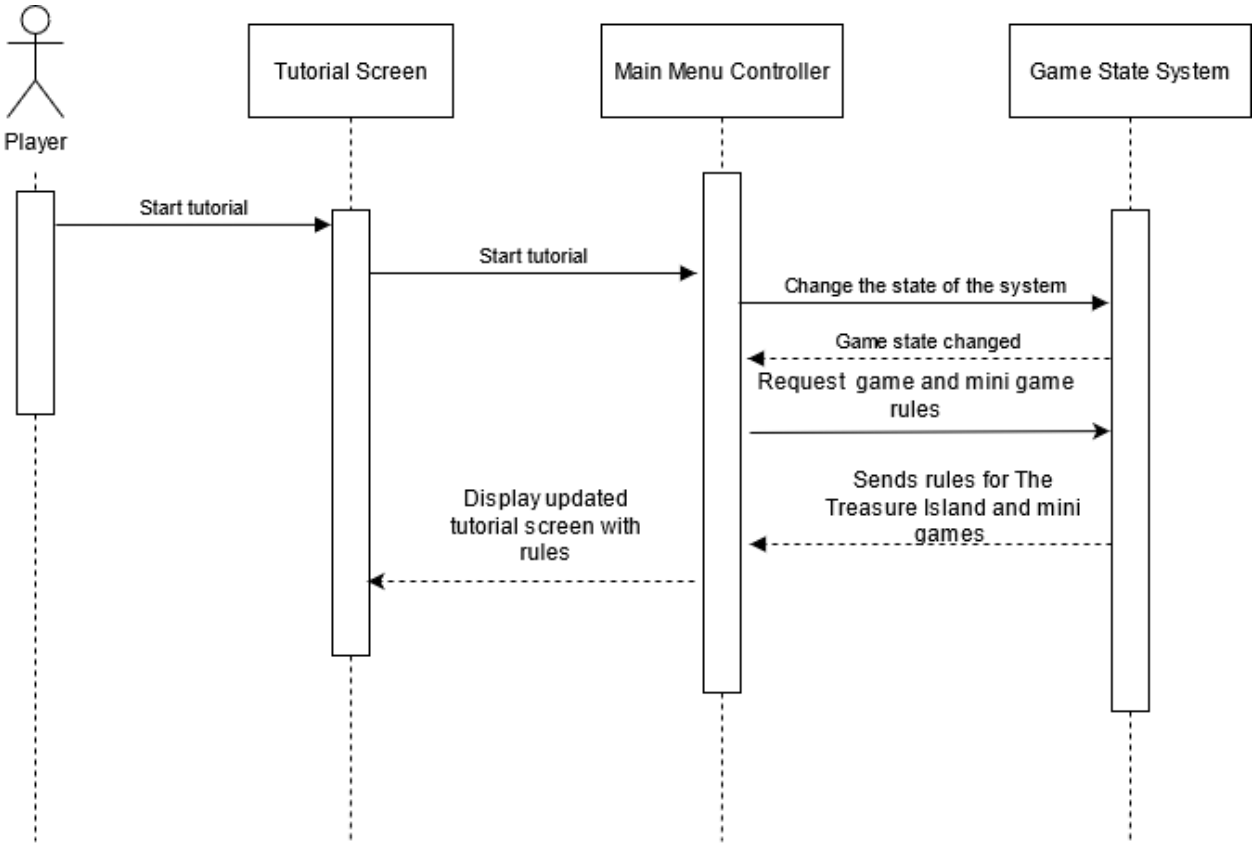

Figure 11: Sequence Diagram for Use Case C

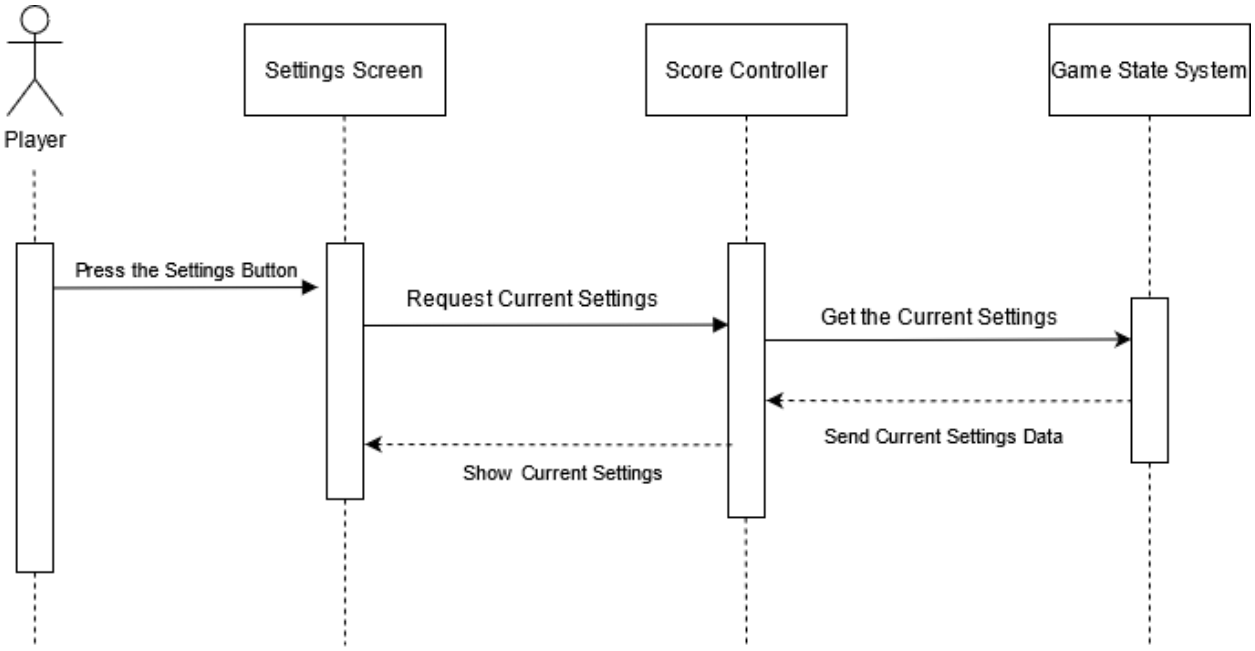

Figure 12: Sequence Diagram for Use Case D

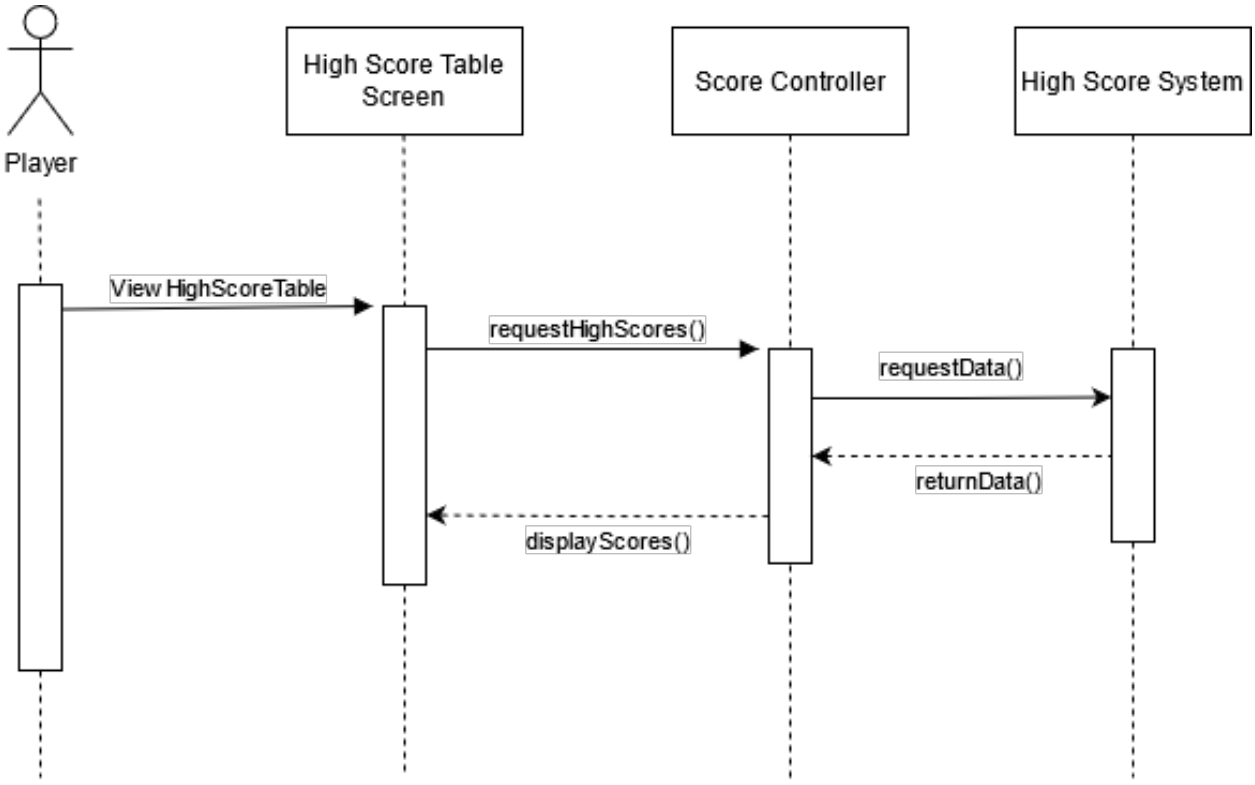

Figure 13: Sequence Diagram for Use Case E

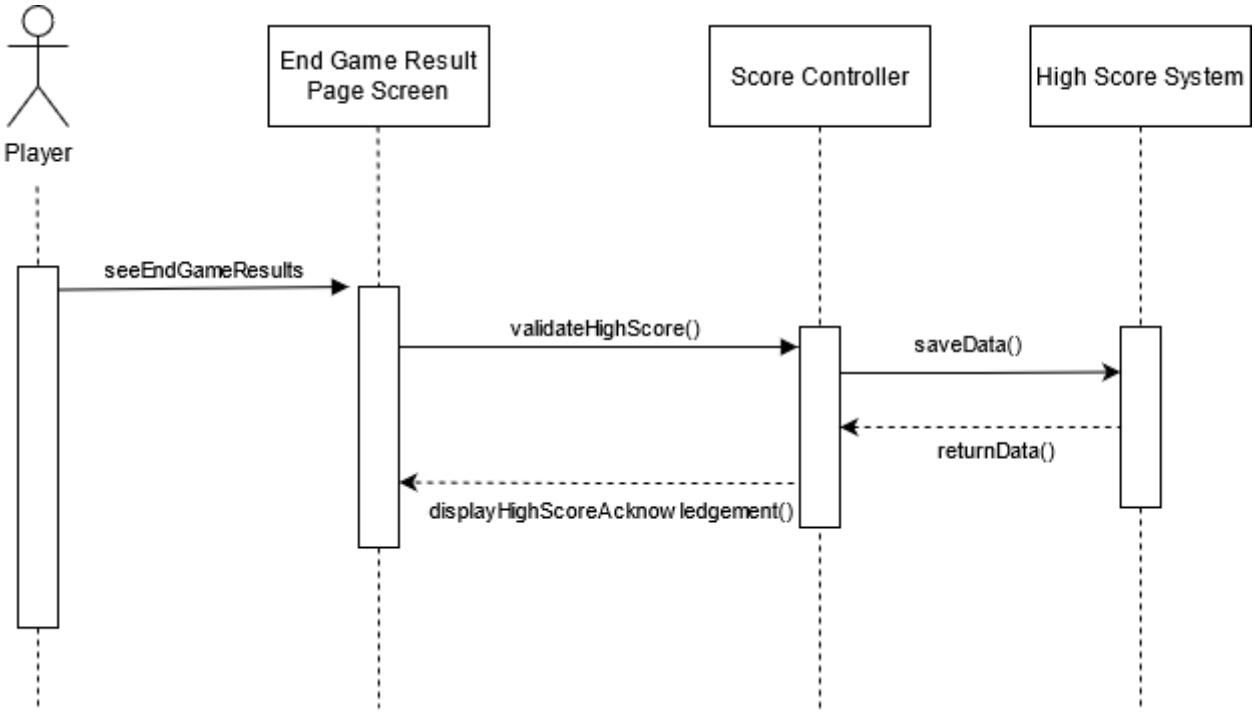

Figure 14: Sequence Diagram for Use Case F

4 Detailed Class Diagram

This section provides a detailed class diagram for The Treasure Island.

Important Note: UML class diagram did not fit into one page. We divide it into two pages. First page contains main system's UML connections and there is a red line (called "Connection to Subsystems") on the right side of the Game Controller which connects the main system to subsystems on the page 2. Page two contains subsystems' UML class diagrams and they are connected to main system. This connection is shown by the red line (called "Connection to Main System") on the 2nd page. I also uploaded a png file which is proparley connected in one file on GitHub repository which can be accessed through: `https://github.com/EngandDeveloper/3A04project/tree/main/Tutorial02_Group04_Deliverable3`.

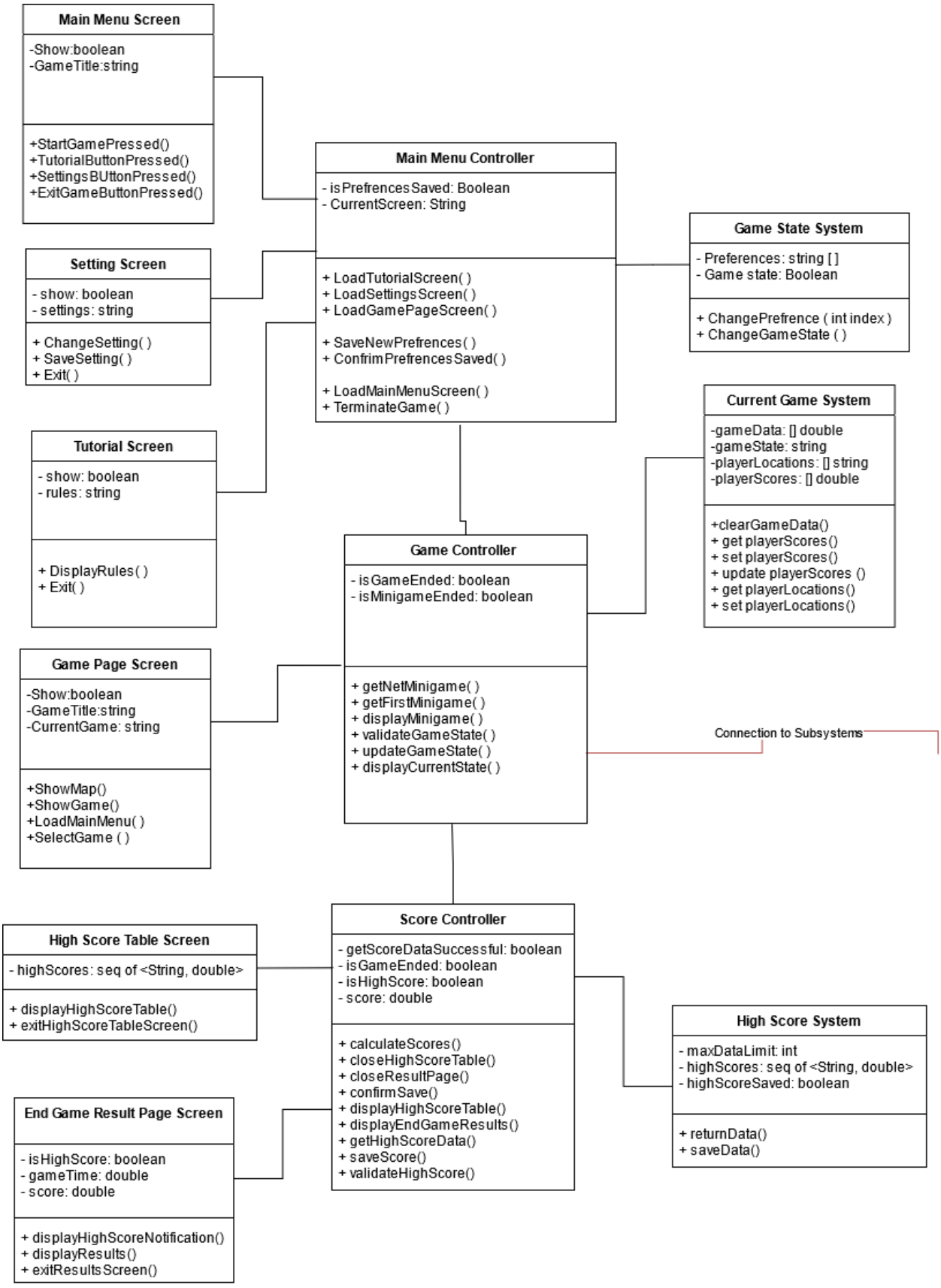

Figure 15: UML Class Diagram for Main System

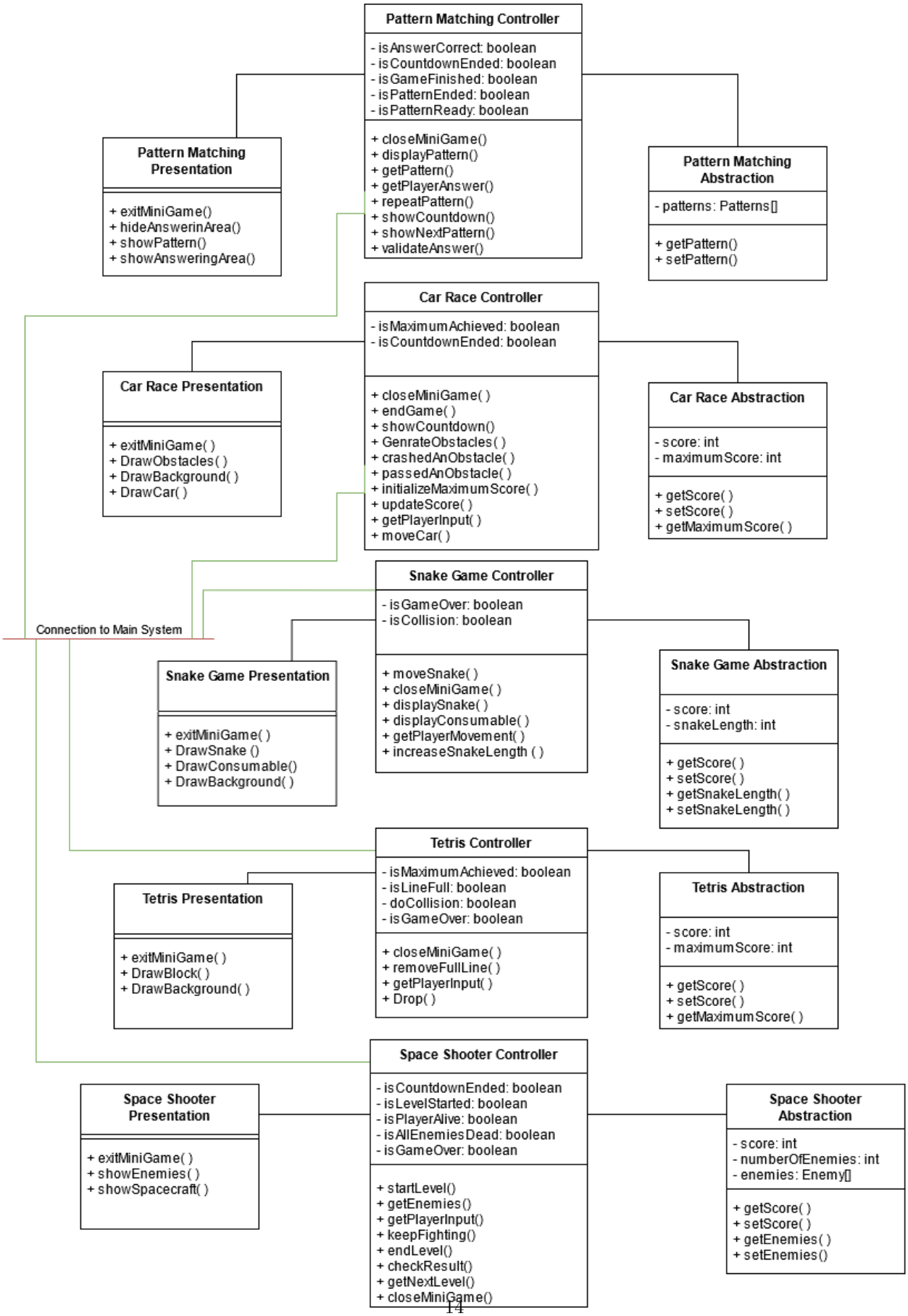

Figure 16: UML Class Diagram for Subsystem

A External Link for Diagrams

If the diagrams are unreadable due to their size, you can access their image files via: `https://github.com/EngandDeveloper/3A04project/tree/main/Tutorial02_Group04_Deliverable3`

B Division of Labour

Include a Division of Labour sheet which indicates the contributions of each team member. This sheet must be signed by all team members.

The following below includes a description of the division of labour for this document.

Mohinder Kallay
Made contributions to section 2, 3, 4
Abdullah Abdul Maksoud
Made contributions to section 2, 3, 4
Namik Karaata
Made contributions to section 2, 3, 4
Gengyun Wang
Made contributions to section 1, 2, 3, 4
Junhong Chen
Made contributions to section 1, 2, 3, 4

M.K	March 19, 2021
Mohinder Kallay	Date
A.A.	March 19, 2021
Abdullah Abdul Maksoud	Date
N.K.	March 19, 2021
Namik Karaata	Date
G.W	March 19, 2021
Gengyun Wang	Date
J.C	March 19, 2021
Junhong Chen	Date