Use Cases

Fully dressed Use Case

Use Case UC10: Load Game

Scope: RaceTrack Game **Level:** user goal **Primary Actor:** Player **Stakeholders and Interests:**

- Player: Wants to load a game that was previously saved on the local computer.

Preconditions: A file that contains all information that is required to represent a state of a game. These informations must contain a valid map of a race track. Optionally this file can contain a list of players that alread participated in the game and also a list of coordinates where these players already drove to. The first coordinate has to point on the start line of the track. **Success Guarantee:** The above mentioned file needs to be a textfile with the file extension .rtsave and it must follow the json syntax:

At the beginning of the .rtsave file there is the definition of the path of the track. The track is represented by a multiline string where each line has to have the exact same length as the previous one. Valid characters are:

- ' ' [space] representing a coordinate that is driveable
- '8' representing non-drivable teritory
- ':' representing the start and finish line

Rigth below the track, there can be player objects. They need to contain a color attribute an a list of coordinates where the car of the player has already been at. This list need to have atleast one entry that is pointing to the starting line.

Main Success Scenario:

1. The game is already started and is in the main menu
2. The player opens the 'Load Game' dialogue
3. The player specifies a file the meets the above mentioned criteria
4. By confirmation via double klick on the file or by pressing 'ok' the file gets loaded
5. The application shows a success message an enters the main menu again.

Special Requirements:

- The 'Load Game' dialogue should use the JFileChooser class so the users sees a familar dialogue and less explanation is required
- The user should be able to open the savegame file with a text editor and be able to see the shape of the track

Technology and Data Variations List:

The .rtsave file needs to follow the json syntax for easy handling. XML and YML would also be possible, but are much more complex to implement. Below is a brief example of the contents of a .rtsave file.
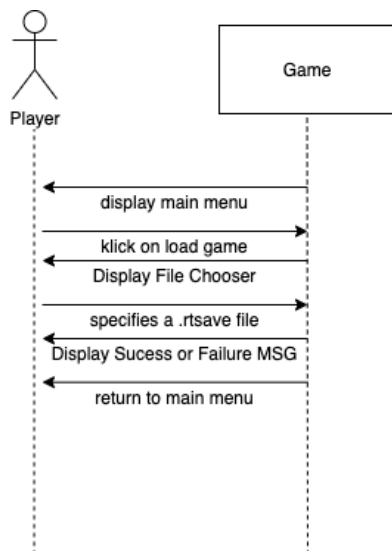
```
{
    "track": [
        "8888888888888888888888",
        "8888888    :    888888",
        "8888       :       8888",
        "8888       8       8888",
        "8888               8888",
        "8888888        888888",
        "8888888888888888888888"
    ],
    "players": [
        {
        "Name": "Bob",
        "Color": "blue",
        "Positions": [
            "13-2",
            "12-3"
        ]
        },
        {
        "Name": "Alice",
        "Color": "red",
        "Positions": [
            "13-3",
            "12-4"
        ]
        }
    ]
}
```

Frequency of Occurrence:

This use case occures ussually once per start of the game.

System sequence diagram

Casual Use Case

Use Case UC11: Save Game

Scope: RaceTrack Game **Level:** user goal **Primary Actor:** Player **Stakeholders and Interests:**

- Player: Wants to load a game that was previously saved on the local computer.

Preconditions: A gameplay session needs to be loaded and there needs to be at least 100 KBytes of free space available in the directory where the save game should be placed. **Success Guarantee:** The preconditions must be fullfilled.

Main Success Scenario:

1. A gameplay session is running
2. The player switches to the main menu
3. The player selects 'save game'
4. The application show a sucess message

Special Requirements:

- The saved gameplay session needs to be loadable as described in use case UC10.
- All information must be saved in one file
- When the file is loaded again, the gameplay session should be the excatly the same.

Technology and Data Variations List:

- The resulting file that gets created must have the extension .rtsave
- The resulting file must follow the json syntax described in the use case UC10.

Frequency of Occurrence:

This use case is expected to occure every time before the application is beeing terminated.

Brief Use Case

UC12 - Start game:

Scope: RaceTrack Game **Level:** user goal **Primary Actor:** Player **Stakeholders and Interests:**

- Player: Wants to start the application.

Preconditions: The Application has to be successfully installed. **Success Guarantee:** The preconditions must be fullfilled.

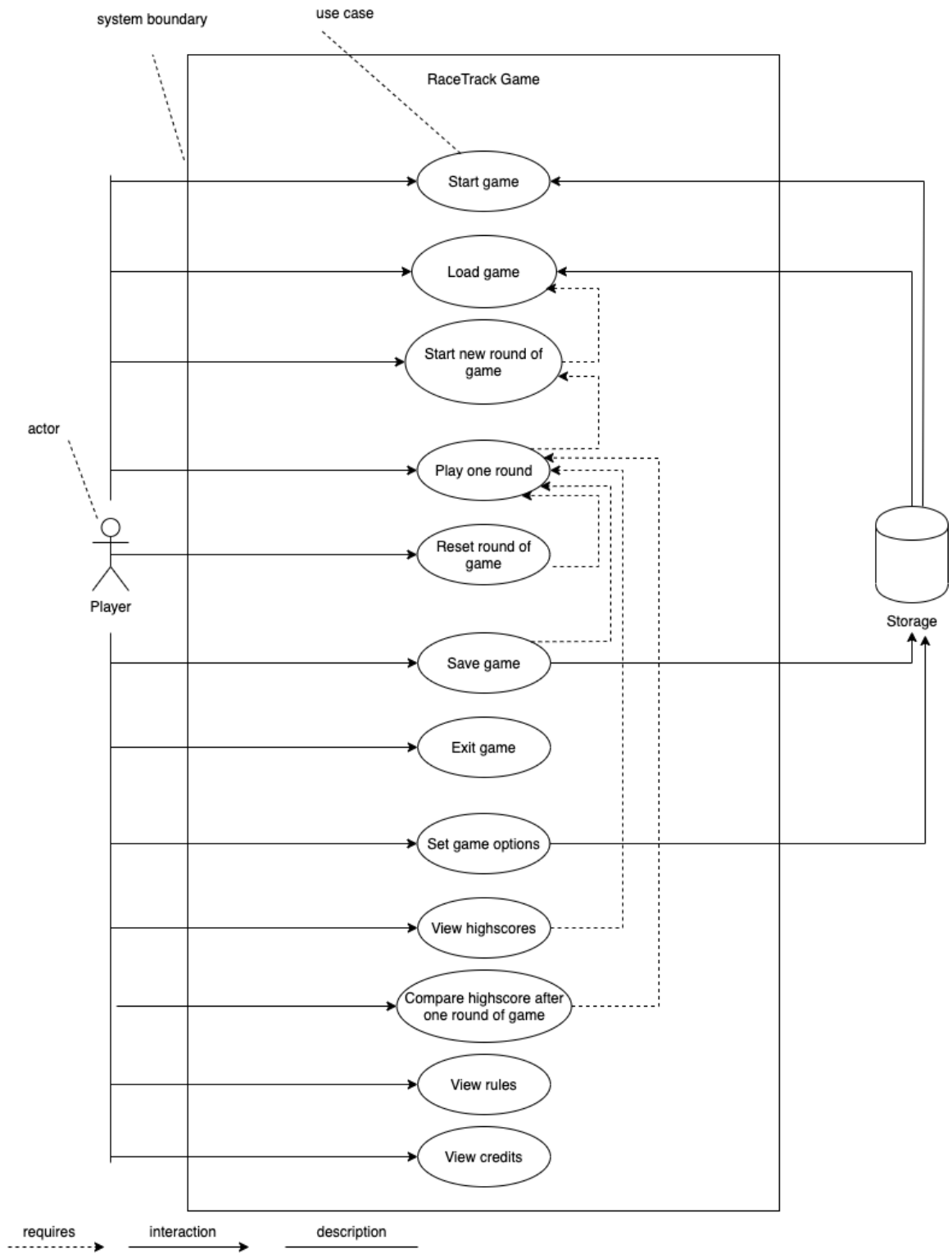**Main Success Scenario:**

The player starts the application by double klicking it or if hes wishes from command line. As the graffical user interface apears all the previously saved options are applied again.

Special Requirements:

- The previously saved options shoud be applied automatically
- If the application is started for the first time, it should start with default options

Use case Diagram

system boundary   use case

RaceTrack Game

Start game

Load game

Start new round of game

actor

Play one round

Reset round of game

Player

Save game

Storage

Exit game

Set game options

View highscores

Compare highscore after one round of game

View rules

View credits

requires   interaction   description

Domain Model

Game
Players[array]

Track

Player
Name

Car

Car
Color

Position

NextTurns

Velocity

PossibleTurn
Name

EndCoordinate[array]

Track
Name

Start/FinishLine

Route
Name

Positions[array]

Game — 1 — n — Player — 1 — 1 — Car — 1 — n — PossibleTurn

Game — 1 — 1 — Track

Car — 1 — 1 — Route