Softwarepraktikum SS 2021

Assignment 2 Report

Group 3

Jamie Anike Heikrodt	394705	anike.heikrodt@rwth-aachen.de
Thomas Pollert	406215	thomas.pollert@rwth-aachen.de
Jascha Austermann	422571	jascha.auster@rwth-aachen.de
Silyu Li	402523	silyu.li@rwth-aachen.de

Contents

Exercise 1

1.1 Discussions

- How do we know if it's time to get a message from the server? This was our main challenge in uderstanding the socket communication.
- There are 9 different types of messages (7 from the server and 2 from us), how do we differentiate them and make correspongding actions?

1.2 Solutions

We solved our main problems (the ones above) by:

- Using$DataInputStream.read()$.
- Extracting the message type and deal with it using *switch* statement.

All in all we implemented a client that handles the communication with the server using TCP. It can react to every type of message given in the network specifications and it can send messages indicating our own moves to the server.

Exercise 2

2.1 Discussions

We discussed to implement the heuristic function developed for the last assignment exactly as we created it.

2.2 Solutions

For assignment 1, we discussed for a while how to implement the heuristics. Our idea was to take the distances to other players into account and weighed those distances such that our AI aims to play against players close to us in the leaderboard more.

Therefore we had some formula, which turned out not to fit our first idea. We found this formula serving our puposes better:

$$-d \exp^{-((d)/(c))}$$

where d is the distance to one player and c is the sum of distance to all other players. This is summed for every player above us. For players below us

$$d \exp^{-((d)/(c))}$$

is summed. (d = distance from us to player viewed in this summand, c total of distances us to all others)
The first step was to count all the tiles occupied by different players(step over map). Now we have a ranking, which we can calculate the distances with.
The implementation of that heuristic function was straightfoward. We summed the values of the functions above to get a result value.