Project

Implementation of a multiplayer game in Java

Advisor: David Spieler

Your task is to write a graphical 2D multiplayer tank game in Java with the following specification:

- **Programming language:** Java 6 or 7 using only those libraries that are part of the JDK distribution. You may also use the LWJGL to render the game state and get the player input. The final product must consist of a single runnable JAR file. Usage of existing code like from any existing tank game implementation is not allowed.

- **The play field** is 50 tiles wide and 32 tiles tall where each tile consists of 16 times 16 pixels. A tile is either empty or is made of stone. The border of the play field consists of stone.

- **Each player controls** a tank which he can move in four directions up, left, down, and right via the keys W,A,S, and D. Tiles made of stone cannot be entered. The direction the tank is facing changes with the moving direction.

- A tank can shoot a bullet every 4 seconds. A bullet moves in the direction the tank was facing when the bullet was fired until it hits another tank or a stone field. If a bullet hits an enemy tank, the tank is destroyed and the respective player loses.

- **The tank that remains after all other tanks were hit by a bullet wins.**

- **When the game client is started,** the player can choose a name and is in a lobby where he can chat with other players.

- **Each player can create a new game and can join a game that has not started yet.**

- **A player that has created a game can start the game as soon as there is at least one additional player that wants to join the game.**

- **The game clients connect with each other via a client server structure to provide a consistent view of the game state.**

- **You must** implement the following features:
  - A graphical game client, that provides the lobby and after game start shows the play field, the current position and orientation of the tanks and the current position of the bullets and reacts to player inputs.

- **Some of the may features are:**
  - Player accounts, statistics and rank lists
  - Additional tile types like swamp (slower moving speeds), destructible rocks
  - Additional bullet types (faster bullets, controllable bullets)
  - Shields and armor
  - Mines
  - After agreement with your advisor, any additional feature you might think of

This is a preliminary project description. Your task is to meet with your advisor to discuss this description, clarify, and fix the respective points.