Individual Extension Plan

Command interface for the maze game

Andreas Eklund 890220

Idea Summary

The basis for this extension is to implement a command interface for the maze application. All actions that either the NPC:s or the player(s) makes should go via this command interface. This will make the AI and user independent from the rest of the application.

I will also make a few smaller extensions, like a maze generator, that makes sure that the maze will be generated randomly so that the replayability of the game will be higher. I will also make a GUI extension so that the player will know in what direction (north, east, west, south) and how fast the ball is travelling at. The GUI will also show when power-ups are available.

Pre-study Mention

I will study other games to see how they have solved the issue with handling the AI and player commands and if they even use a common interface for the AI and the player at all. I will also try to find any relevant academic material at all, relating to this subject.

In order to make a good maze generator, I will have to study algorithms for maze generation. This is a common topic on many sources on the Internet, for instance http://www.astrolog.org/labyrnth/algrithm.htm#perfect.

Implementation

This extension will be implemented as an extension to Unity3D and will allow for easier and hopefully more seamless implementation of the AI but also to player control. I want the rest of the application to be independent from the AI, but rather have the AI read whatever it needs to read from other parts of the application (like where the ball is).
Give a somewhat detailed description of how you plan to implement the extension. Mention what you specifically want your extension to be able to do. Note that this is really hard to know before the project is over.

Limitations

The maze generator will only work with a 2D maze, and not a 3D maze. It would also have been possible to make the generator work for infinite sized mazes, but we are not sure that it would add anything positive to the game and could possibly cause performance issues, unless solved in a good way. It might however be experimented with if there is still time left.

The GUI will probably not be prioritized that much, because I believe in simplicity for this particular game.

Purpose

The advantage with this kind of system is that it will be easy to let a user take command of the dwarves, if that is our wish later on; All we need to do is to add some sort of GUI for that. It will also be equally simple to let the AI take control of the ball, perhaps even adding several AI balls if the game mechanics allow that. As an additional benefit, it will be easy to replace the AI with a new, improved one since it will be very modular. That will be particularly useful if we wish to continue working on the game after this course and participate in the Swedish game awards.

The purpose to have a maze generator is that it will increase the replayability of the game, since players will not know where to find powerups or the dwarves settlements. It also adds a sense of exploration, that I believe that the players will enjoy.

The reason to have a GUI is that it will give the player information that he or she can do whatever with. Perhaps he or she aims for a new speed record? It will also make it easier for the player to orient themselves in the maze.