DM810 Computer Game Programming II: AI

Fall 2008

Department of Mathematics and Computer Science
University of Southern Denmark

November 21, 2008

Introduction

The purpose of this project is to try some of the methods from the course during actual programming.

The project is to be done in groups, preferably of size two. Groups of size one and three are allowed.

Requirements

You are to implement one or more programs demonstrating and visualizing some of the methods from the textbook. The visualization can be 2D or 3D.

At least two techniques from different Game AI areas should be included. The concept "technique" should here be interpreted as roughly equivalent to the contents of a first level subsection, as defined by a sectioning number of the form $X.Y$, in the textbook. Different Game AI areas means that the value of X should be different for the two techniques.

You may build on a project from DM809 by adding AI to the program, or you may create standalone programs demonstrating and visualizing the chosen techniques in some relevant setting defined by you.

Examples of techniques:

- An assortment of steering behaviors from Section 3.3.

- Flocking from Section 3.4.

- Coordinated movement from Section 3.7.

- Actuator-based steering from Section 3.8.

- Pathfinding using the A^*-algorithm in Section 4.3.

- State machines from Section 5.3.

- Tactical pathfinding from Section 6.3.

- Minimaxing from Section 8.2, e.g. used for optimal play of Tic-Tac-Toe.

Formalities

You should hand in: Some kind of executable program or installer (must run on either Imada computer lab machines, or on Windows (XP or Vista), with no special actions needed for installment), source code files, and a report of 8-10 pages (excluding any appendices) in pdf-format. The main aim of the report should be to describe the design choices made during development, the reasoning behind these choices, and the structure of the final solution, as well as give a simple user manual for the program. The user manual should include installation instructions. The source code should not be included in the report, but just be supplied as raw files.

The project will be evaluated by pass/fail grading. The grading will be based on:

- The clarity of the writing and of the structure of the report.

- The ability to apply the concepts of the course.

- The amount of work done.

The material should be handed in using the `aflever` command on the Imada system: Move to the directory containing your code, executable, and report, and issue the command `aflever DM810`. This will copy the contents of the directory to a place accessible by the lecturer. Repeated use of the command is possible (later uses overwrite the contents from earlier uses). In the directory, you must for identification purposes have an ASCII file named `names.txt` containing the names of the group members, with one name per line.

You must hand in the material by

Monday, January 12, 2009, at 12:00