Computer Science

COMPSCI.777 S2 C– Assignment

Due Date: Monday, 23rd August 2004, 10.30pm

Weighting: 6% of the final grade
Submission: ADB
Files to be submitted:

1. **All .cpp and .h files**
2. **A written report as a .doc or .txt file**

Assignment Description

This assignment requires you to extend the simple adventure game from assignment one, in which a player moves around a 3D scene and catches creatures.
The idea of this assignment is to integrate finite state machines to make your opponents (in this case the creatures) more intelligent and therefore more challenging for a human player.
In order to make this assignment more challenging, you are required to have at least two different kind of creatures in your game – to be more specific: two creatures showing different behaviours in this game.
The goal of the game is to save the objects from getting eaten and to catch as many creatures as possible. However, we obviously cannot make the objects more intelligent and we therefore can only assign intelligent behaviour to the creatures we need to catch.
The player may catch a creature by moving close to a creature and capturing it with a key press. The player may also use key presses to increase or decrease his/her velocity. Points are scored by successfully capturing a creature ("hit"), but points are deducted for a "miss". There is no distinction between the creatures when allocating points for a “hit”.
All the other specifications are the same as in assignment 1.

Learning Objectives

- Learn how to assign specific behaviours to a NPC.
- Learn to implement a Finite State Machine (FSM).
- Learn how to integrate a FSM into an existing game.

Problem Specifications

- There is no need for further problem specifications. You are free to decide on your creatures behaviours depending on your personal preferences.
- You can use the code provided in Lecture 02 on FSM, which can be found under: http://www.cs.auckland.ac.nz/compsci777s2c/lectures/ute/FSMclass/ and http://www.cs.auckland.ac.nz/compsci777s2c/lectures/ute/AIengine/

Written Report

You are required to also submit a written report with a precise description of the FSM you defined, including states and transitions for each creature. You can draw a directed graph for each creature or state. Be quite specific in describing where you used hierarchies (if you used them). Please also include a discussion on how the behaviour of your creatures could possible be improved, such that the game would be less predictable.
Please also include documentation on how to install and run your game.
The written report should not exceed 10 pages.

Assignment Submission

All files should include your name, UPI and ID in a comment at the beginning of the file. All your files should be able to be compiled under .NET without requiring any editing. In particular they should include the necessary OpenGL/GLU and Windows libraries.
Clearly indicate the source of any code you are using in your solution. All your files should include adequate documentation (this means enough documentation to enable me to understand what your are doing).
The written report can be submitted as a .doc or .txt file

- **The assignment due date is Monday the 23rd August 2004 (time: 10.30pm).**

- **Please submit your assignments using the assignment dropbox (ADB).**
  - If the dropbox server is down please create a zip-file which contains all the files you want to submit and email it to me. The name of the zip-file must be "Ass2 _<your_UPI>.zip " (e.g. Ass2_wlor001.zip).
- **Assignments submitted late get a 5% penalty. No assignments are accepted after the 24th August 2004, 10.30pm.**

Marking

This assignment is worth 6% of your final grade. We will split the marking into:

1. 4% for the implementation.
2. 2% for the written report.

Assignments are marked according to their technical quality, the game play experience, and according to how well they fulfil the given specification.