

Lemmings

Object Oriented Design and Programming Tutorial

Consider the following simplified version of an adventure game in which lemmings move from room to room:

Each room is connected to another room to its West, and to a further room to its East. The connections are symmetric, i.e. if room A is connected to its East to room B, then room B is connected to its West to room A.

Lemmings share the same DLM, Direction of Lemming Movement, which may be East or West. The DLM is initially East, but it may be changed.

When a lemming is woken up, it moves to the room which is in the direction of the DLM from the room it is currently in.

- a Draw a UML class diagram outlining the adventure game as described in the previous four paragraphs.
- b Write C++ class declarations that support the adventure game.
- c Write a main program that
 - i) creates three rooms r0, r1, r2,
 - ii) connects r1 to the West of r0, r2 to the West of r1, and r3 to the West of r0,
 - iii) creates lemming Lala in room r0, and lemming Lilo in room r2,
 - iv) wakes up Lilo, then wakes up Lilo again, and then wakes up Lala,
 - v) sets the DLM to West,
 - vi) wakes up Lilo.
- d Write the bodies for all functions, and initializations for all entities declared in part b.