TJ Hall Modeling
Alex Katkova
TJHSST Computer Systems Lab 2006 - 2007

Abstract

The purpose of this project is to create a simulation of the students and teachers at Jefferson moving around the building. This simulation is meant to be accurate based on time and location. The program is coded in Java, using MASON, which provides the appropriate graphic output interface.
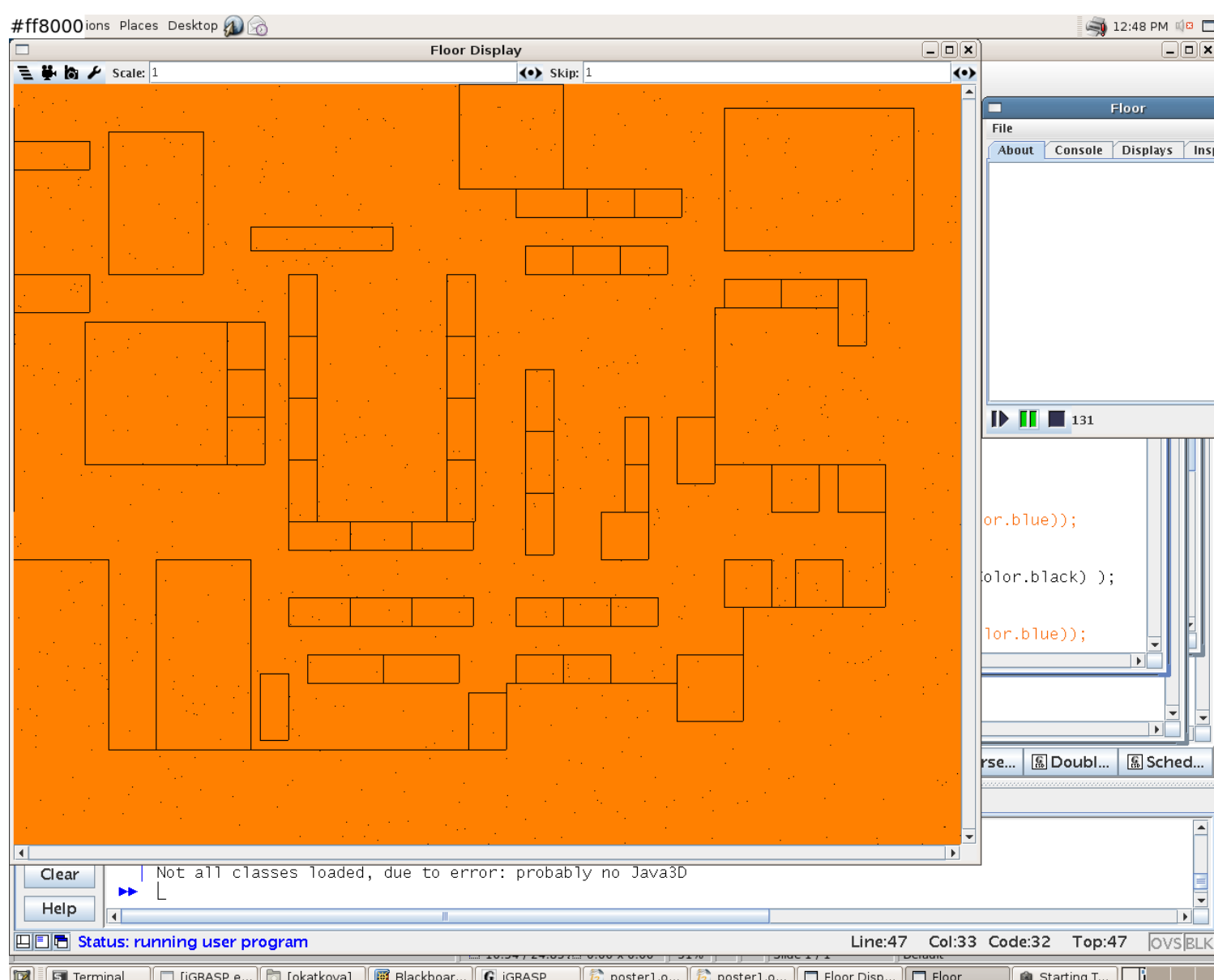
Background/Introduction

The idea behind modeling is to create computational devices and them simulate them to model real phenomena. One of the first such simulations was John Conway's Game of Life. A great deal of research has been done on this topic before. One of the examples I looked at was a traffic jam simulation in a city. The project made some discoveries about human behavior. Humans tend to optimize their behavior by avoiding collisions with obstacles and with other humans. This is something that I hope my program will also be able to demonstrate.

Procedures and Methods

There was a tutorial that was available through MASON that already looked remarkably like what I needed and so I adapted it for my purposes. I created an input file that stored the locations of the walls and rooms. Upon running the program would read in this list and display the rooms and walls to the screen. The student dots are randomly generated for now, but their initial locations will be based on probability in the future. Currently, once the students enter a classroom, they are not allowed to leave, but new students may join them.

Results and Conclusions

The result should be that over the time line of the simulation (typical school day or typical school week) the dots behave according to specified formulas; mainly probabilities. From this, one should be able to recognize which hallways need to be avoided and how to get around quickly during breaks, something that may be useful to students.

Close-up