

TJ Hall Modeling

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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

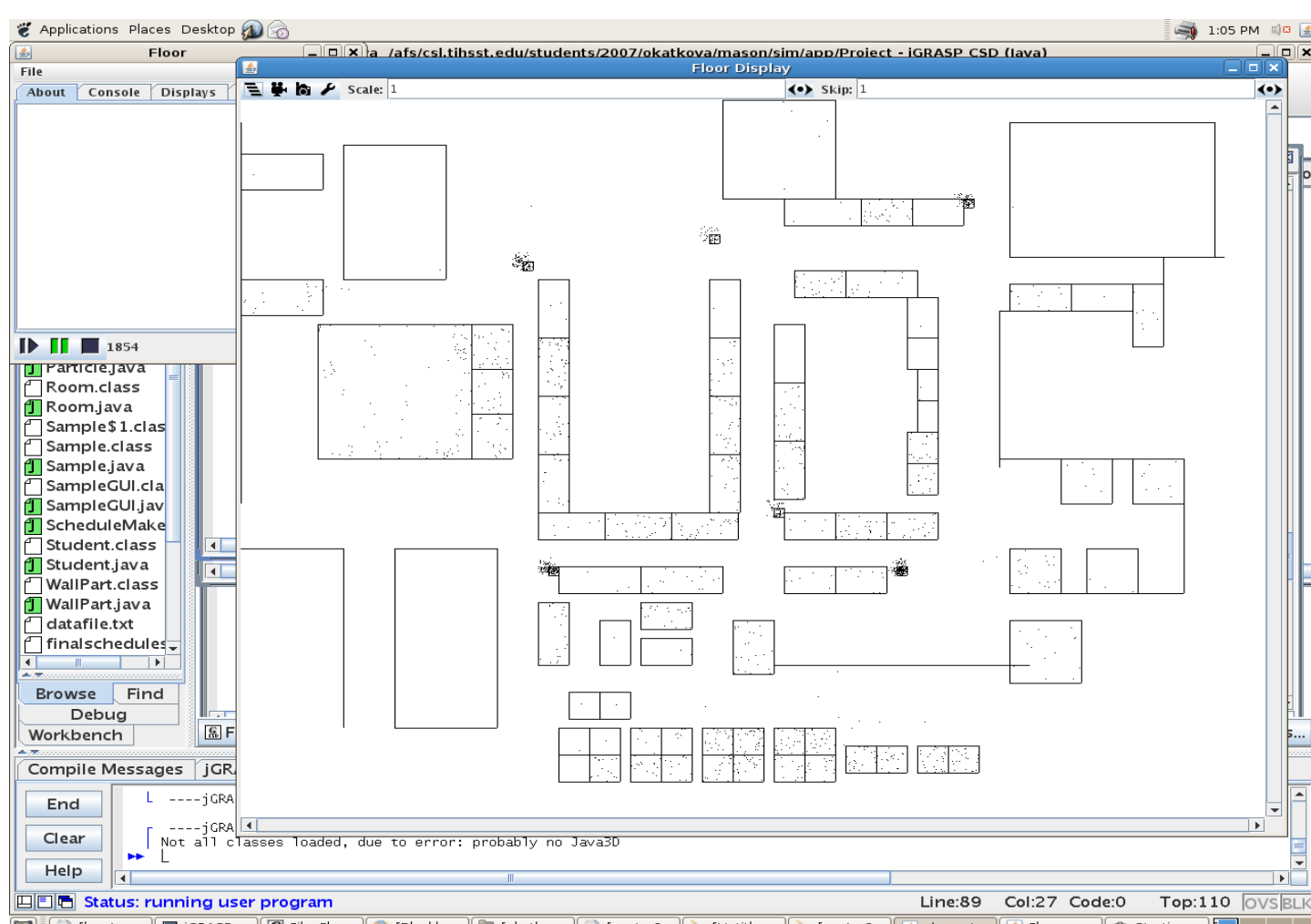
The idea behind modeling is to create computational devices and then simulate them to model real phenomena. One of the first such simulations was John Conway's Game of Life. A great deal of research has been done on this topic before. One of the examples I looked at was a traffic jam simulation in a 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. The actual schedules are now available, and the students have been programmed to follow that schedule. Students are allowed to get to class early, but once they get there, they aren't allowed to leave. They are also allowed to be late. In theory, no student should be late, but since the step sizes for all students are the same, there may be some students who simply don't make it.

Results and Conclusions

The result should be that over the time line of the simulation, a typical anchor day, the dots will behave according to specified formulas; mainly probabilities and defined schedules. 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.



Second floor

