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Project Proposal

Elevator Simulation

https://github.com/averyowl/elevator-simulation

The intent of my project will be to simulate and display an elevator system with N number of elevators, and efficient routing of elevators to serve user demands.

Description

The completed project will include an elevator system designed with motor movement in mind. There will be a library for elevator control, elevator simulation, and user simulation. The goal would be that this library for elevator control could be used in the wild to control an actual elevator or elevator group. Elevator simulation will be a library which will replicate the data a real elevator system would generate, that being elevator elevation, door open sensors, and button press data. The user simulation library will simulate users on each floor, pressing buttons and moving about the elevator group.

In this simulation, there will be N number of elevators, and N number of floors. The simulation will be time step based, with events like elevator movement happening continuously while some events like user movement into elevators will be instant. User simulation will be simple to allow the simulation to scale to large amounts of users, elevators, and floors, allowing simulation of a large and busy complex.

The final group of libraries could be used to measure things like elevator throughput, user interaction time, and different elevator routing methods. I may experiment with using dependency injection to allow for different routing methods to be swapped out on the fly.

Issues / Concerns

This project's scope may be too large to complete in 6 weeks. I'd like it to do a lot computationally, so that may lead to shortcomings in areas like simulation display. I could opt for a simple text based display, or use a framework to implement a GUI.