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Final Project Outline

We are going to implement a fire safety plan. We will use an image of a school floor plan. I was thinking of representing an elementary school, but we could also do the floor plan of the first floor of Ross if we can't find an elementary school. The patches will have an instance variable telling if they are a wall, a room, a hallway or outside. There should also be a breed for just the exits of the building so each person can find the exit closest to them. The people will be spread throughout the school and the goal is to have people exit the building as efficiently and fast as possible. Each tick will represent one second. The people have to make decisions about which exit they're going to, if they are going to follow the proper procedures and how they are going to behave throughout the fire drill (selfishly pushing their way out or calmly exiting the building).

Spatial and Temporal Scale: Our world will be a floorplan of a school which will cover the majority of the world. There will be a small surrounding area so we can represent when people make it out of the building. Each tick will represent a very small amount of time (~1-5 seconds) so we can show the movement of the students and faculty in "live" time.

World Details: We will import a school floor plan. Hopefully to extend the model our program will work for multiple different floor plans. We can use the image to color the patches so we can create walls (similar to the maze). Instance variables of the patches can include "wall?" and "on-fire?". Different patches can represent either walls or hallways. I think a good way to determine the shortest path to one of the exits is by using dijkstra's algorithm. We can also decide to start the fire in different locations and see how that impacts the people's decisions. We also could implement an underlying graph that the users can see to map out all possible ways

the people can exit the building. Then we could also use Dijkstra's algorithm to help the people determine how they can leave the building.

Behaviors: In a single tick all the people must make a decision about where to move next: stay in the same place, move forward, turn or interact with another person. One agent must decide if there is someone in front of them so they can't move forward, to push that person out of the way or move forward towards their intended destination. Agents should have personal attributes that determine if they will respect their fellow people or bulldoze through them to get out.