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CS273-1

Dr. Matt Bell

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M5P: Final Project Proposal

Project Proposal

- Simville + districts = parent class and child classes?
- Districts classes will hold people in them (not inheritance)
- Districts connected by doubly linked lists: district be a vector of pointers to citizens
    - Or have each citizen be assigned a district
- Maintain district in map,
- Citizens: ignorant, alarmed, zombies, doctor?
    - Base class = denizens
    - Child classes = ignorant, alarmed, zombies, doctor?
- Multimap of people, assigning different states as key and states as value
- Possibly making people be infectious/alarming and harder to infect based on their age
    - Possibly making people more infectious based on health
- We need to have a graph resulting from the simulation we each run, can be done via CSV into excel or some other program
- Limiting which people can travel to which district because districts are farther/and closer to each other than others (also maybe dependent on age).
- At the end of each turn, take count of number of zombies, alarmed, and ignorant
- City be a base class that has a method to go through time ticks or be a linked list and have function in main.cpp go through the time ticks?

For our simulation, Simville will be a base class, then have child classes representing Downtown, the ‘Burbs’, Medical Hill, and the University, using polymorphism. Districts will have a member variable that will tell the district which districts are accessible from it. For our citizens, we will have a file that contains information for them, including names and age, and will read that file in main using vectors. Citizen will become a base class, with ignorant, alarmed, doctors, and zombified people becoming child classes, all having an action that they can take related to their state (ignorant people just move, alarmed can alarm ignorant people, zombies can bite other people, doctors can heal zombies). Our citizens will have random infection rates and rates to alarm other people or heal zombies, which can change according to their age and health. For movement, citizens will move to another district, then interact with a citizen in that district based on a randomized number that corresponds to a citizen in that district. Once the citizen interacts with another citizen, there will be another randomized number that will determine whether an action will be taken, i.e., if an alarmed citizen alarms and ignorant one, or a zombie bites a healthy citizen. Within each district class there will be a multimap of people, with their state as the key and their name as the value, if they move to a different district they will be

deleted from their current district and inserted into the adjacent one. This will help us count the number of infected, ignorant, alarmed, and doctors in each district at the end of each time tick for our graph, which will be implemented using an excel .csv file. At the beginning of our simulation, we will get the user's input for the number of days the simulation runs.

Team Members Information

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UML Diagrams Rough Draft