Final Project Write up
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Overall Dynamics

The game will have 3 distinct forces at play: the Hobbits, the Nazgul, and "food" which will grow from the ground by itself. Each force will have its own re-spawn rate. Hobbits will be able to eat food and Nazgul will kill Hobbits.

The two main classes in the simulation will be Creature and Item. Hobbits and Nazgul will be sub classes of Creature and food will be a sub class of item. Both creatures and items will have a coordinate of the type Coordinate. This will let creatures be sorted by their location on the map and will let creatures know if they are in the same location as an item.

Each turn, after the creatures are sorted, one by one they will take their turn. A turn will consist of the creature scanning the neighborhood for other creatures and items and then making a decision based on the incentives of that particular creature. Decisions will be made using a point system. For example, in the case of a hobbit
1. distance from Nazgul will increase the score of a particular move
2. an item on that location will increase the score of a move
3. the existence of an adjacent hobbit will increase the score of a move

Two additional Creature sub classes
Gandolf – doesn't have to eat, but cannot move, respawn, or reproduce. Can kill a Nazul within range once every turn.
Eagle - doesn't have to eat, but cannot respawn, reproduce, or attack. The Eagle has 3 range and 3 movement per turn and it's only goal is to find and pick up Gandolf.
Once the Eagle has found Gandolf, Gandolf can be moved by the eagle and his range, movement increases to 3.