Dylan Perrill and Nick Smith

CSCI 200 Project

Our project will be a Risk-like game, that utilizes the directed graph to represent the game map and the locations where troops can be stationed or attack. There will be a hidden capital for each side that the user can spend money or points to search for. Initially, we will implement a two-player game, where you and your opponent will play against each other with a turn-based style. If we have the timer, we will try to implement a 1 player mode, in which the user plays against the computer. The computer would make decisions based on calculations or a random choice.

We will use a directed graph to represent the game map because it allows us to easily control where the game is playable and facilitate troop movement. It also allows us to store information at each node, giving the game a more dynamic feel. Nodes will represent Territories and or countries. They will have connections based on their geographical neighbors so the user or computer can only move or attack from one node to an adjacent node. The territories will have a name, a certain number of troops that will be added to your army while you control it, if it is occupied or not, and if occupied, how many troops are stationed in the territory.

Claiming a territory is relatively self-explanatory. At the beginning of the game, you and your opponent will be given a few territories to start at and will spend the first few turns claiming unoccupied territories. For a territory to be occupied, there must be at least one troop stationed there. If the territory is occupied and you are trying to take it, a battle will take place.

Battling for a territory has a few parts to it. Firstly, the number of troops attacking and defending matters. Just like in the actual game of risk, we will have a bit of randomization to determine the winner. If the number of attacking troops is larger than the defenders, the attackers have an advantage and a higher chance of winning the battle. But if they have the same amount or the defenders have a larger amount, the defending side has the advantage. In risk, this happens with dice, and if they roll the same number, the defense always wins. We will simulate this by using random numbers and comparing which is higher. The higher number of troops will have either more random numbers or a higher chance of getting a higher number.

When the Attacker wins, they demolish the defending troops and must move to occupy the territory. If the defense wins, the attackers lose a certain number of troops based on the comparison of the numbers above. If the defense wipes out the attacking army, they do not move to occupy the territory that they were attacking from.

We will also add a feature in which the user can spend troops on a search which will tell the user what node the enemy's capital is located on. We will use a breadth-first search to do this. This will cost the player something but also give them an advantage because if they can take the capital, it will make the game end much more quickly due to greatly weakening the opponent.

The game is over when you or your opponent has occupied every territory. There will also be the opportunity to surrender before the game is finished.