Purpose

The purpose of the term project is to design, implement, and evaluate an intelligent autonomous agent in the context of the combinatorial game known as RISK.

At the end of the semester, all agents will compete against each other.

What is RISK?

The game is played on a map with several regions which can be represented by a connected graph. The map might be actual world map, or a random one. The game begins with the setup phase in which players claim lands. After that "war" phase begins. The playing order of players is decided at the beginning with a rolling of a die, higher value resulting in earlier turns. The game ends when one player invades all territories.

Setup Phase

At the beginning all the lands are unclaimed. Players claim regions one at a time until all the lands are claimed. After that, players place their armies in the regions they claimed.

War Phase

The war phase begins when all players distribute their soldiers. It is the core of the game-play. It consists of three phases: Placing new armies, Attack and Fortify (or army replacement).

Placing New Armies

At the beginning of his turn, a player receives new soldiers, the number of which depends on the number of regions the player currently owns. If the map is of the actual world, owning all the regions in a continent provides a great bonus of receiving more soldiers. This notion enhances the notion of strategy. When the player places all of the new soldiers to regions of his choice, the game continues to the attack phase.

Attack

In this phase, a player selects an army in any region he holds, and attacks to a neighbor region of his choice. Both attacker and defender use all of their soldiers. If the number of soldiers of attacker is $x$ and those of the defender is $y$, then the attacker rolls $x$ dice and the defender $y$ dice. The winner is the one with the highest sum of the values of his dice rolls. When the player decides that that’s it for this turn (which he can do without attacking anyone), he ends the war phase and proceeds to the army placement phase.
Fortify
In each turn players receive new soldiers. The number of which is proportional to the number of regions the player holds. In this phase, the player receives those new soldiers and decides to which region to deploy them. After the deployment is complete, the player gives up his turn to the next player.

Additional Resources

- Official Manual:
  

- Imitation of the game:
  
  http://www.kongregate.com/games/Abalore/world-rebellion-ii

- A simpler version of the game:
  
  http://www.roketoyun.com/risk.html