

# RISK

SECOND PROJECT DEFINITION  
AGENTS AND DISTRIBUTED ARTIFICIAL INTELLIGENCE

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## Brief description of the project

Risk is a strategy board game of diplomacy, conflict and conquest for two to six players. It is played on a board depicting a political map of the earth, divided into forty-two territories, which are grouped into six continents. Turn rotates among players who control armies of playing pieces with which they attempt to capture territories from other players, with results determined by dice rolls. Players may form and dissolve alliances during the game. The goal of the game is to occupy every territory on the board and in doing so, eliminate the other players.

The system designed has one agent serving as the board and 3-6 agents serving as players. During the course of the game, the agents will compete against each other, following the strategies chosen.

Strategies vary between 4 mindsets: aggressive, defensive, smart and random. Aggressive players will attack whenever possible and will rarely fortify their territories. Defensive players will fortify the territories they find most likely to be attacked and will rarely attack. Smart players try to strategize the decision to attack or fortify and every decision each requires. Random players make every decision randomly.

## Second Part Description

The second part of the project will make an attempt at creating a strategy based on past experience. Several games will be run and every decision will be recorded as well as the final leaderboard position of the player that made it, this will allow a very strategic player to decide its move knowing how likely it is to lead to a victory.

### Dependent variable:

- final result of each player

### Independent Variables:

#### **3 Independently recorded files for each of the following:**

- Attack:
  - difference of attacking pieces vs defending pieces (attacker's advantage)
  - number of dice chosen
    - number of pieces on the attacking territory
    - number of pieces on the defending territory
- Defend:
  - number of dice chosen by the attacker and the defender
  - number of units of the territory under attack
- Fortify:
  - difference between the maximum amount of pieces of the same player around the origin territory and the amount of pieces of the current player's territory (territory's disadvantage)
  - destination territory's disadvantage