



All assignments (3) will be about the development of different parts of a project. Thus, every assignment will build upon code developed in the previous assignments. You are expected to work in teams of 5 for every assignment.

### Problem statement

The specific project for this semester consists in building a reasonable version of *eight-minute empire: Legends* computer game. The developed program will have to be compatible with the rules of the game which can be accessed at [2] and [3]. The *eight-minute empire: Legends* game consists of a connected graph map representing a world's continent with one or more countries/regions connected by land and water, where each node is a country/region and each edge represents adjacency between regions. Two or more players start with some coins, and armies on the board on two separate regions, and bid to *select* the starting player. Each turn, the player buys a card from the 6-card display. Each card gives a good and an action. The player takes the action immediately. Actions allow players to build their empires and take control of the board.

The game ends when each player owns a certain number of cards depending on the number of players. Players count up victory points and the player who has the most victory points from regions, continents, and cards' abilities has the most powerful empire and is the winner! If players are tied, the player with the most coins wins. If still tied, the player with the most armies on the board wins. If still tied, the player with the most controlled regions wins.

### Parts/features of the game

**Map:** The game map is a connected graph where each node represents a region that could be either free or owned by one player. Edges between the nodes represent adjacency between regions. The map is divided into subgraphs that represent continents. A continent is a connected subgraph of the map graph, and every region belongs to one and only one continent.

Each continent is given a control value that determines: the number of armies per player, and the number of regions of the continent controlled by each player. During game play, every region belongs to one and only one player and contains armies that belong to the player owning the region. In your implementation, it will be expected that the game can be played on any connected subgraph that is defined by the user before play, saved as a file representation, and loaded by the game during play.

**Game:** the game goes through the following phases:

**Setup phase**

1. The board map is loaded, i.e., the map boards put together on a flat surface so that they make a large rectangle board.  
If playing with 2 or 3 players, only three of the map boards are used (they can make an "L" shape or may be placed side by side to make one long rectangle).
2. Place the starting region token on a region that meets the following criteria:
  - a) It has one water connection to another continent.
  - b) It is adjacent to a region that has one water connection to another continent or has an additional water connection to another continent.
3. The card labelled "Card Cost" is set aside. If playing with 3 players, from the game cards pile, the "four" cards need to be removed (i.e., the cards with the little number "4" in the top right corner, just below the scroll on which the good is displayed) If playing with 2 players, the cards with a little number "3" also need to be remove.

Shuffle the remaining cards and place them in a deck face down next to the board. Draw six cards and place them face up in a row along the top of the board. Place the "Card Cost" card just above the row of cards.

4. Each player takes a set of one color of 18 armies (cubes) and 3 cities (discs). Each player places 4 armies on the starting region on the board. If playing with 2 players, each player takes turns placing one army at a time of a third, non-player color in any region on the board until ten armies have been placed.
5. Place the coin tokens in a pile next to the board. This is the supply. Each player takes 9 coins if playing with four players, 11 coins with three, and 14 coins with two.

Players are now ready to play.

**Game playing phase**

- A. **First player bid:** Players bid to see who will choose the first player. Each player picks up his coins and privately chooses a number to bid by placing them hidden near the game board. When all players are ready, all players reveal the amount they have chosen to bid at the same time. The player who bids the most coins wins the bid and puts the coins he bid in the supply. Other players do not pay coins if they lost the bid. If the bids are tied for most, the player with the alphabetical last name order wins the bid (e.g., Lin will go first vs. Lu) and pays his coins. If all bids are zero, the alphabetical order player goes first. There is only one bid per game.
- B. **The turn-based main play phase** starting with the first player and going in clockwise order, players take turns taking one of the faceup cards. When a player takes a card, he places it face up in front of him/her.  
He must pay the appropriate coin cost for the card depending on where it is in the row (this cost is listed on the "Card Cost" card). From left to right, these are the coin costs of the cards: 0,

1, 1, 2, 2, and 3. for example, if a player selected the third card from the left, he would pay one coin.

Each card gives a good and an action. The player takes the action immediately. Actions allow players to build their empires and take control of the board. Refer to game rule for player's possible actions.

After a player takes his card and action, he needs to slide the remaining cards to the left to fill in the empty card space. He will draw a new card and place it in the right-most space. Then the play goes clockwise.

C. Game End: The game ends when each player owns a certain number of cards depending on the number of players.

2 Players 13 Cards

3 Players 10 Cards

4 Players 8 Cards

Players count up victory points for region, continents and cards' abilities. The player who has the most victory points from regions, continents, and cards' abilities has the most powerful empire and declared the winner! If players are tied, the player with the most coins wins. If still tied, the player with the most armies on the board wins. If still tied, the player with the most controlled regions wins.

## References

### Game Components:

- 4 map Boards
- 4 sets of: 18 Wooden Cubes(armies)
- 4 sets of 3 Wooden castle pieces (cities)
- 43 Cards,
- 36 Coin Tokens
- 3 Citadel Tokens
- 5 Explore Tokens
- 4 Encounter Tokens
- 1 Poison Swamp Token
- 1 Starting Region Token

### Main reference

[1] Red Raven, game Design: Ryan Laukat Illustration: Ryan Laukat, ©2014 Red Raven

<https://redravengames.squarespace.com/eightminute-empire-legends>

[2] <https://www.ultraboardgames.com/eight-minute-empire/eight-minute-empire-legends-rules.php>

[3] <https://tabletopia.com/games/eight-minute-empire-legends>