CS383: Software Engineering

HW2: Use Cases
Spring 2014

Tao Zhang(zhan1872@vandals.uidaho.edu)
John Goettsche(john.h.goettsche@gmail.com)
Cameron Simon(simo2703@vandals.uidaho.edu)
Gabriel Pearhill(pear9115@vandals.uidaho.edu)
Wayne Fuhrman(fuhr0438@vandals.uidaho.edu)
Joseph Higley(higley@vandals.uidaho.edu)

Contents

1 Description of Network **3**
1.1 How does it look like? . . . 3

2 Use Case Diagrams **5**
2.1 General (Tao) . . . 5
2.2 Main Menu (Wayne) . . . 6
2.3 Random Events (John) . . . 6
2.4 Movement (Gabe) . . . 7
2.5 Magic (Tao) . . . 9
2.6 Diplomacy (Cameron) . . . 9

3 Use Cases Descriptions **10**
3.1 Random Events . . . 10
3.1.1 Display Die Roll . . . 10
3.1.2 Display Player Order . . . 11
3.1.3 Display Random Events . . . 11
3.1.4 Display Random Movement . . . 12
3.1.5 Rally Demoralized Units . . . 12
3.1.6 Display Unit . . . 13
3.2 Selection . . . 14
3.2.1 Unit Selection . . . 14
3.2.2 Hexagon Selection . . . 14
3.3 Movement . . . 15
3.3.1 Move a Unit . . . 15
3.3.2 Using a Portal . . . 15
3.4 Magic . . . 16
3.4.1 Cast a Spell . . . 16
3.4.2 Cast a CounterSpell . . . 17
3.5 Diplomacy . . . 18
3.5.1 Influencing Neutrals . . . 18
3.5.2 Invading Neutrals . . . 19
3.5.3 Human Sacrifice . . . 20
3.5.4 Spawn Emissaries . . . 21
3.5.5 Diplomacy . . . 22
3.5.6 Alliance Selection . . . 22

1 Description of Network

1.1 How does it look like?

(Author: Tao Zhang)

During the Main menu steps:

- Login/out: Each user should have an account. Once the user open the game, the user has to login with the account, otherwise register one (there will be a register button). What's more, we could add some features, like "Friend" System, which allows to invite friends to play.
- My suggestion is that we should not have Save and Resume, because that is kind of complex. A user want to end the game will be assumed that he want to surrander, instead of save a game. But if we want, here's the idea.
- Resume a game: Once the user claims to play a saved game, the server has to seek if all the players for this game are online. Then send a message to all the users that invite them to play the game. If all the users accept, the server will read the data and reset everything from last time on the screen.
- Save a game: If a user claimed to save a game, and all other users agree, the game will be saved and end. Server will save the data
- New Match: If a user claimed to play a new senario, the server can search the users who also want to play this senario and randomly choose users to make a new game.

For each game turn:

- Roll dices: randomly compute two numbers in order.
- Random events: Compute the random events and inform that. Then update all the information on each user's screen.
- Player order: Compute the random order, then server controls the order and let each user to take their turns.
- Random movement: server will compute randomly movements and update that on user's screen

- Diplomacy:
- Mana Regeneration: Server will compute and plus all mana regenerated for each character, update on user's screen

Then during the player's turn, the networked multi-player system record the finial decision from one user, then transfer and display the information on other users's screen.

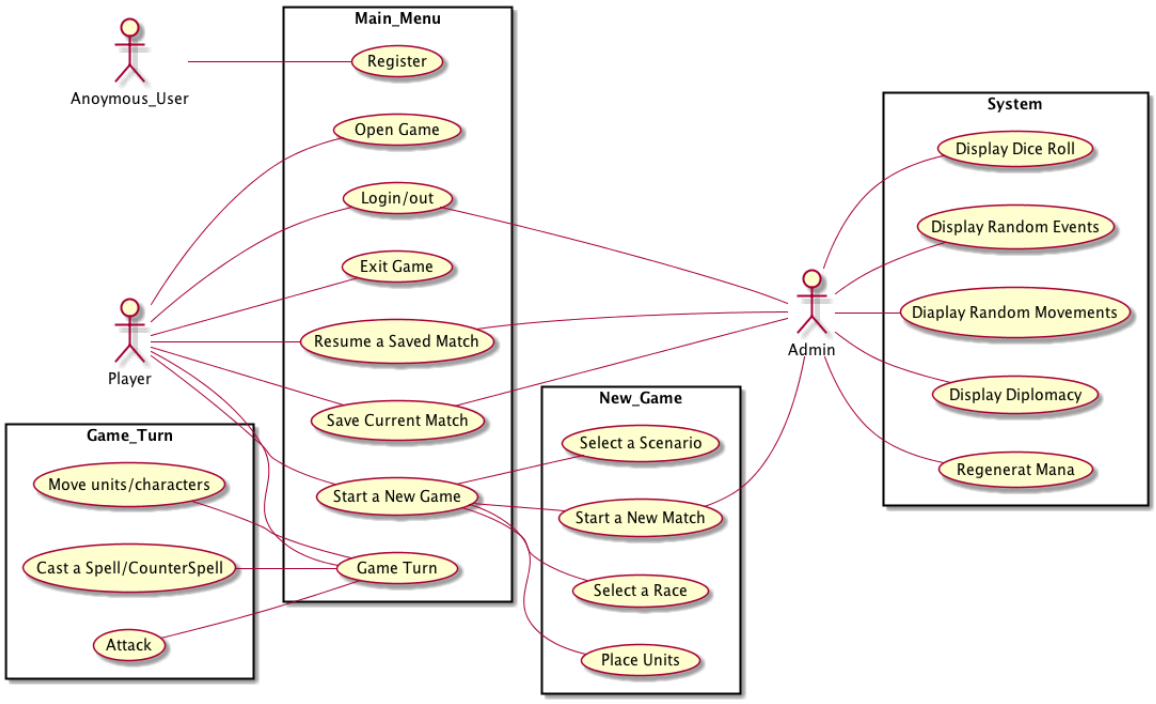
- For example, in the movement, each time the phasing player informs a character movement, the server will read the data and transfer to other user's local directory, then update the screen.
- Special cases: after phasing player claimed "end of spell segment". Phasing player will lost the right to operate, server will transfer the right to other users. Server then wait all other non-phasing players' claim of "end of counterspell segment". Server operate all the counterspells on all users screen and return the right to phasing player.

Finally, the most important thing I considered is that we have to create temperaty files in all user's local directories. These files are used to record all operations among the players and server, which:

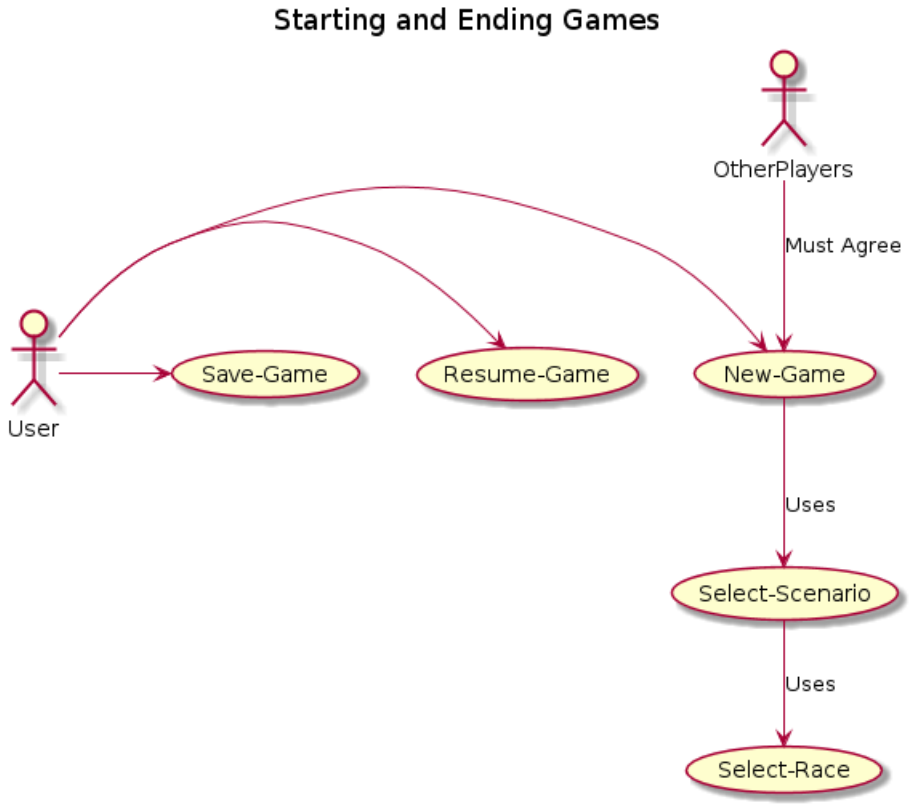
- Record local user's operations immediately
- Server read the file and transfer to all other user's local temp files
- Local PC reads the updated temp file and operate the update on user's screen

2 Use Case Diagrams

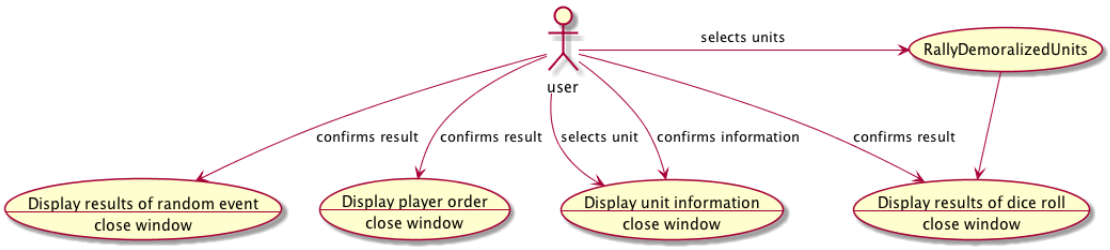
2.1 General (Tao)



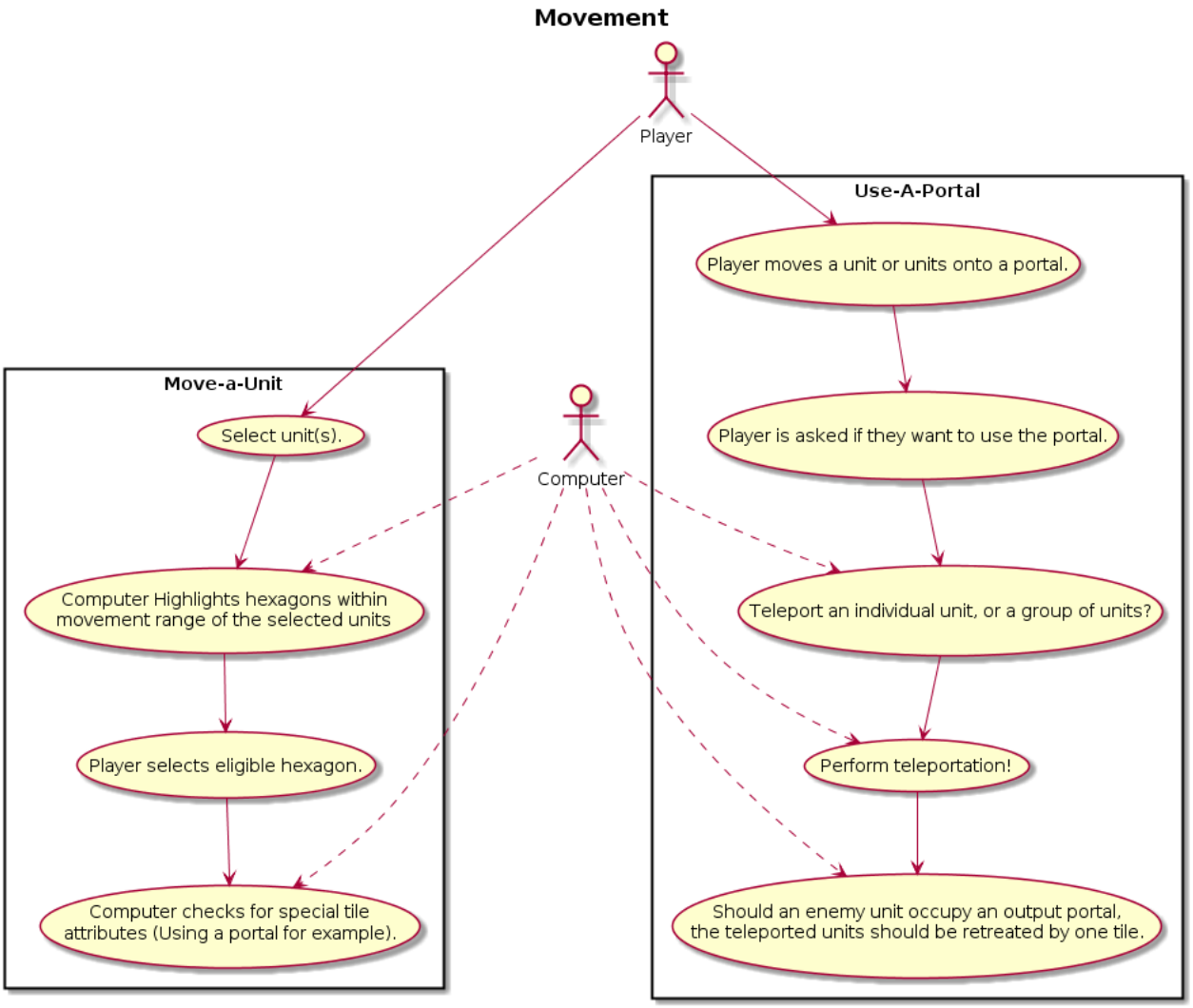
2.2 Main Menu (Wayne)

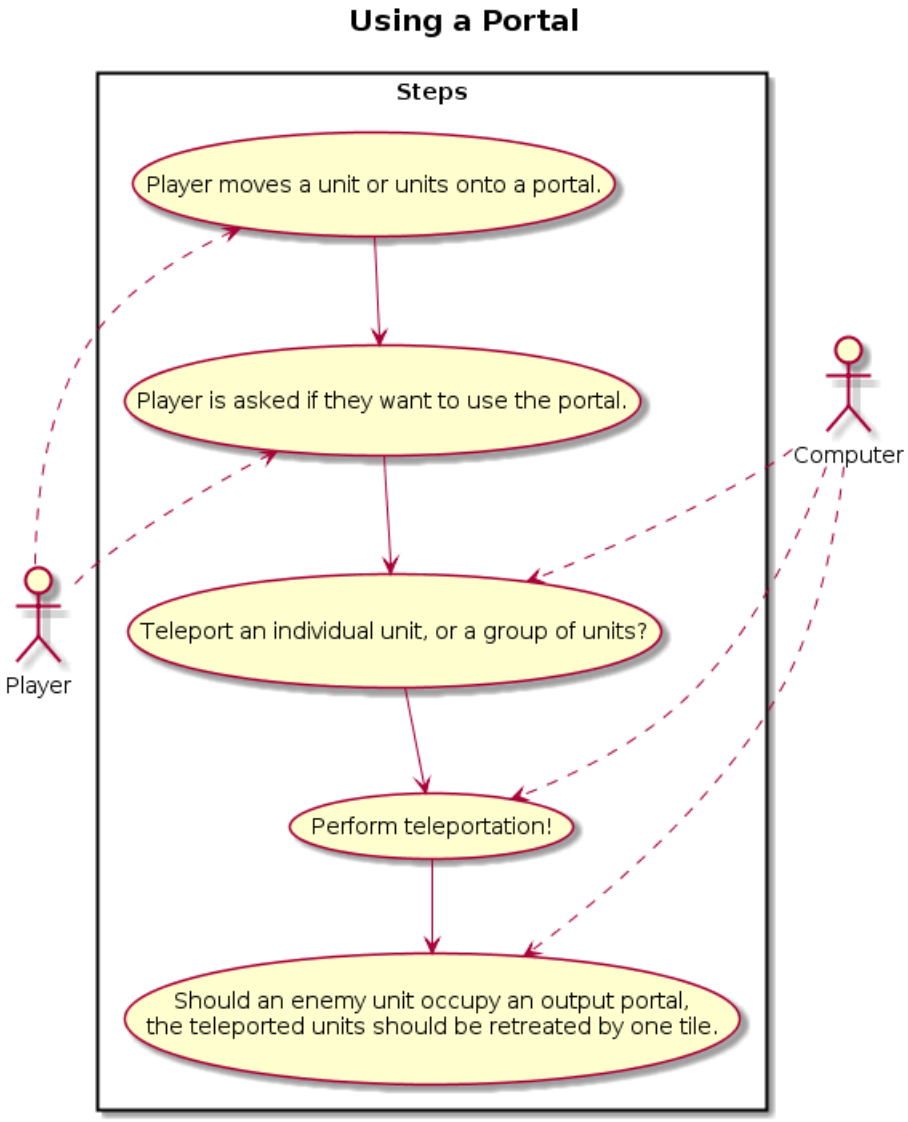


2.3 Random Events (John)

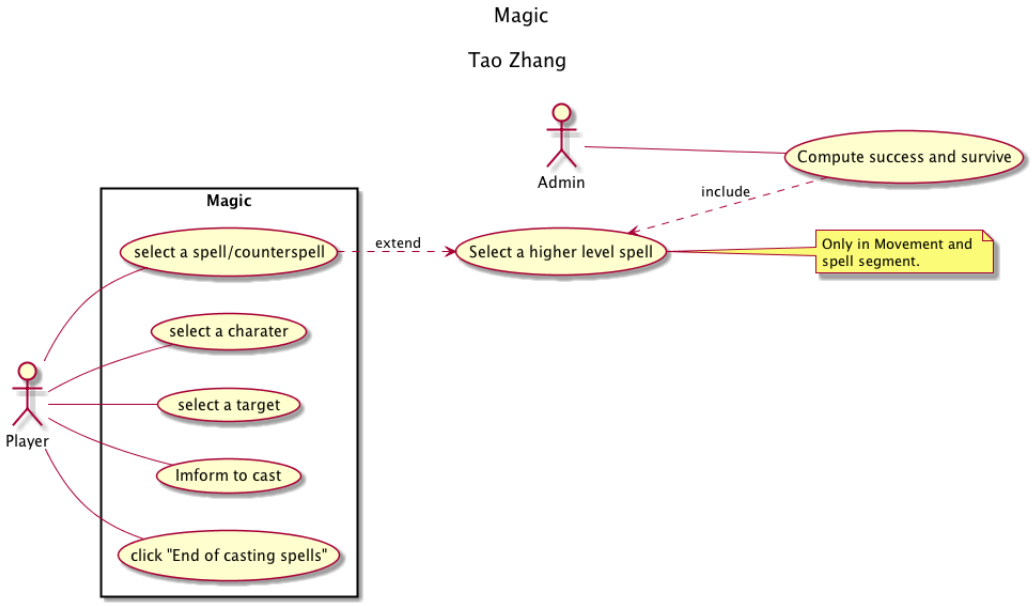


2.4 Movement (Gabe)

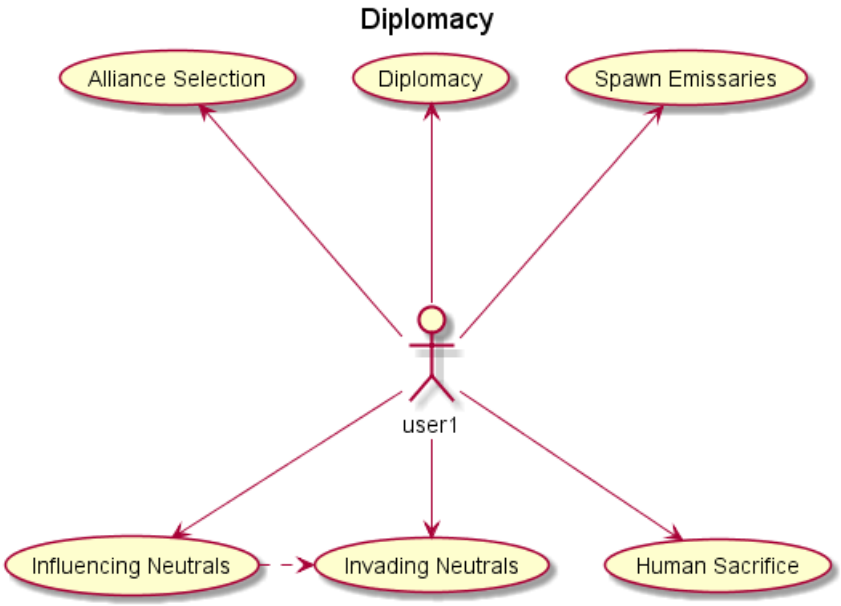



Using a Portal
Steps
Player moves a unit or units onto a portal.
Player is asked if they want to use the portal.
Teleport an individual unit, or a group of units?
Perform teleportation!
Should an enemy unit occupy an output portal,
the teleported units should be retreated by one tile.
Player
Computer

2.5 Magic (Tao)



2.6 Diplomacy (Cameron)



3 Use Cases Descriptions

3.1 Random Events

(Author: John Goettsche)

3.1.1 Display Die Roll

Random Events	**Dispay Die Roll**
Summary	Displays the result of a die roll
Actors	• Players
Preconditions	• A die roll is required for a user command
Primary Sequence 1. user selects a command that requires a die roll 2. Computer selects a random number from 1 to 6 3. Computer displays message box with selected value 4. User clicks OK button 5. Computer closes message box	
Alternatives	• Computer requires more than one die roll, then the process is performed the number of times it is requested
Postconditions	• a random number from 1 to 6

3.1.2 Display Player Order

Random Events	**Display Player Order**
Summary	display the order of play
Actors	• Players
Preconditions	• is currently the Player-Order Determination Inter-Phase

Primary Sequence

1. Computer determines the order of play
2. Computer displays a dialog box with the order of play
3. User clicks the OK button
4. Computer closes dialog box

Postconditions	• a message box informing the user of the order of play

3.1.3 Display Random Events

Random Events	**Display Random Events**
Summary	displays a dialog box describing a random event
Actors	• Players
Preconditions	• is currently the Random Event Determination Inter-Phase

Primary Sequence

1. Computer selects a random event
2. Computer displays a dialog box describing the random event.
3. User selects the OK button
4. Computer closes dialog box

Postconditions	• a dialog box describing a random event

3.1.4 Display Random Movement

Random Events	**Display Random Movement**
Summary	move all the vortices, uncontrolled killer penguins, or other randomly-moving units or characters which are required to move in this phase

Primary Sequence

1. Computer centers on the view on a unit to be moved
2. Computer moves the unit

Postconditions	• each move is displayed on the screen

3.1.5 Rally Demoralized Units

Random Events	**Rally Demoralized Units**
Goals	User rallies demoralized units.
Actors	• Players
Preconditions	• is currently a players Combat Phase
Summary	User attempts to rally units

Primary Sequence

1. user selects a unit to rally (see Unit Selection)
2. Computer determines if the rally was
3. Computer displays the die roll (see Display Die Roll)
4. Computer displays the unit in its new status (demoralized or not

Postconditions	• a potential change in status for demoralized unit

3.1.6 Display Unit

Random Events	**Display Unit**
Goals	Display unit information
Actors	• Players
Preconditions	• User turn
Summary	display a message box showing information about a selected unit

Primary Sequence

1. User selects a unit
2. Computer displays a message box containing all the relavant information on the unit
3. User selects the OK button
4. Computer closes the message box

Postconditions	• a dialog box displaying the unit information

3.2 Selection

(Author: Gabe Pearhill)

3.2.1 Unit Selection

Select Unit(s)	**Select one or more units**
Summary	Player clicks a unit on the game board.
Actors	• Player
Preconditions	• Phase requiring unit selection.

Steps

1. Once a phase requiring unit selection begins, the computer highlights all available units.
2. The user clicks one or more units.
3. Computer saves the selection state.

3.2.2 Hexagon Selection

Select Hexagon	**Record the players hexagon selection.**
Summary	The basic action of selecting a hexagon, be it for magic, movement, or attacking.
Actors	• Player

Steps

1. Player clicks on a hex.
2. Computer records the hex selection.

3.3 Movement

(Author: Gabe Pearhill)

3.3.1 Move a Unit

Move Unit(s)	**Move unit(s) across the map!**
Summary	During the movement phase the player selects and moves units.
Actors	• Player
Preconditions	• Movement Phase

Steps

1. Select unit(s). (See Unit Selection)
2. Computer highlights hexagons within range of the selected units.
3. Player selects an eligible hexagon.
4. Computer checks if tile has special attributes (a portal for example) and takes action appropriately.
5. Handle items relating to zone of control.

3.3.2 Using a Portal

Teleportation	**Give the player the choice to use a portal hexagon.**
Summary	If a unit moves on top of a portal, and the player chooses to use it, the computer must move the selected units to another portal location on the map.
Actors	• Player

Steps

1. Player moves on top of a portal hexagon.
2. Player is provided a dialog giving them the option to use the portal.
3. If the player chooses to use the portal the player must then choose to teleport his units individually or as a group.
4. Perform appropriate teleportation.
5. Should an enemy unit occupy an output portal, the teleported units should be retreated by one tile.

3.4 Magic

(Author: Tao Zhang)

3.4.1 Cast a Spell

Magic I	**Cast a Spell**
Actors	• Phasing player
Goal	Phasing player cast spells
Preconditions	• Phasing player is in one of the following phase 1. Movement 2. Spell Segment 3. Combat
Summary	Phasing player gonna cast enough spells he want during his turn
Related Usecases	• Movement • Combat
Steps	

1. Phasing Player select a character with PL
2. Phasing player select an available spell
3. player selects a target for the spell
4. Player imform to cast this spell
5. repeat to cast enough spells

Alternative	• Only in Movement and spell segment: 1. Phasing player can choose a higher level spell with warning red background. 2. Computer will computes the result if successfully cast the spell and whether the charater survive or not • Player click on the buttom "End of casting spells" which the bottom will always be displayed on side of the screen

3.4.2 Cast a CounterSpell

Magic II	**Cast a CounterSpell**
Actors	• Non-phasing Player
Goal	Non-phasing players cast counterspells
Preconditions	• End of phasing player's spell segment
Summary	All non-phasing player will do this at the same time, and once all of them have clicked the "end of counterspell" button. The server will then turn to let phasing player control
Steps	

1. Non-phasing player select a charater with PL
2. Select an available counterspell
3. Select a target to cast this spell
4. Repeat to select enough counterspells

Alternative	• Non-phasing player click the button "End of casting counterspells".

3.5 Diplomacy

(Author: Cameron Simon)

3.5.1 Influencing Neutrals

Actors	• User • Computer
Goals:	Influence Neutrals
Preconditions	• Neutral's Diplomacy marker must be within one hex of a lettered hex(a players hex) on the Diplomacy track.
Summary	When a neutral is influenced by a player that player can move freely through that neutrals territory.

Primary Sequence:

1. Computer recognizes neutral is being influenced by player.
2. Player prompted to see if they want to move through neutral territory.
3. Player moves through the neutrals territory as they wish.
4. If neutrals diplomacy marker is moved should prompt player to move out of neutral territory unless they want to enter "Invading Neutral" state.

Produces:	Diplomacy map with new neutral locations is displayed.

3.5.2 Invading Neutrals

Actors	• User • Computer
Goals:	Invade Neutrals
Preconditions	• User places his/her Army units, Monsters, or Vortices inside territories owned by a Neutral.
Summary	Decide who neutrals in question are going to make alliances with.

Primary Sequence:

1. Computer checks position of Neutral's Diplomacy marker on Diplomacy Track.
2. If marker is closest to a lettered hex, Computer places Neutral on side it was leaning toward.
3. If marker equidistant from two or more opposing, non-invading players, computer displays die roll and players roll (highest wins control). Computer places neutral in winning players hex.
4. If marker equidistant from invading player's hex and one or more other player's hex, it will immediately ally with some non-invading players as in step 3. Computer places neutral in winning players hex.
5. If marker closest to invading Player's hex it is immediately placed in Neutral central hex by computer.

Produces:	Diplomacy map with new neutral locations is displayed.

3.5.3 Human Sacrifice

Actors	• User • Computer
Goals:	Try to gain Influence over Neutrals
Preconditions	• Player moves a unit or Character adjacent to a unit or character controlled by the Neutral to whom he wishes to sacrifice.
Summary	Neutral's Diplomacy marker is moved one hex by the sacrificing Player.

Primary Sequence:

1. Player chooses option of human sacrifice.
2. During the Alliance Determination Phase, the unit or Character is removed from play by the computer.
3. Computer moves Neutral's diplomacy marker one hex.
4. Player may sacrifice as many units/characters as they wish but computer will NOT move diplomacy marker any more for that game turn.

Produces:	Diplomacy map with new diplomacy locations.

3.5.4 Spawn Emissaries

Actors	• User • Computer
Goals:	Creation of emissarries.
Preconditions	• Character must have diplomatic rating greater than zero.
Summary	Up to two emissaries created for character that exist only for one purpose.

Primary Sequence:

1. Computer recognizes game is in Friendly Movement Phase.
2. Computer prompts user to see if they want to create emissaries.
3. User responds yes or no.
4. User selects how many they want to create (1 or 2).

Produces:	Specified number of emissaries on game board. (Do we need rules for emissary movement and deletion in this use case?)

3.5.5 Diplomacy

Author:	**Cameron Simon**
Actors	• User • Computer
Goals:	Establish new diplomacy lines on table.
Preconditions	• Game must be in Diplomacy Inter-Phase state and a player must have a Character of Emissary in the Capital hex of a Neutral Power.
Summary	Establish new diplomacy lines based on game specifications.

Primary Sequence:

1. Computer cross references the race of the player's character or emissary and the race of the neutral power on the table to yield a single number (negative or positive).
2. Player rolls two dice and has that number added to the number found in step 1.
3. Computer references the Diplomacy Results table with number found above (result will be positive, negative, or an 'x').
4. Based on output from step 3 and the rule specification for those outputs, the computer places the pieces in their new locations on the diplomacy track.

Produces:	Display updated map with new marker location on diplomacy map.

3.5.6 Alliance Selection

Actors	• User • Computer
Goals:	Form alliances with other players.
Preconditions	• Game must be in Player-Order Determination Inter-Phase.
Summary	Players choose who they want to be allied with for the current game turn.

Primary Sequence:

1. Each player is prompted to see if they want to form alliances.
2. If player says yes, then they select the player they want to ally with.
3. Computer checks to see if players selected each other to be allies. (Ex: If player A selects to ally with player B, Player B must also select to ally with player A to form the alliance)

Produces:	Displays current player alliances.