Assignment 2

CECS 575 Summer 2017

CSULB ID: 016131932

Aishwariya Talathi

Table of Contents

SERIAL NUMBER	TOPIC	PAGE NUMBER
1	Use case model for "Your Turn"	3
2	UML Class Diagram	11
3	UML Use Case Diagram for the Use Case Model	12

1.Use Case model for "Your Turn".

USE CASE 1	Your Turn	
Goal in Context	The player must try and conquer a territory during 'your turn'	
Scope	Risk	
Level	Primary Task	
Preconditions	1. The Game board is set out so all the players can reach it. 2. Territory Cards are placed facedown at the edge of the board. 3. Golden Cavalry piece is placed on number 4 of the chart which is at the bottom of the game board. 4. Each Player chooses a color and takes all units of that color. 5. All 42 territories must be claimed by the players.	
Success End Condition	The player conquers a territory and gets a territory card.	
Failed End Condition	The player does not conquer a territory and does not get a territory card.	
Actor	Players	
Trigger	All 42 territories must be claimed by the players.	
DESCRIPTION	Step	Action
	1	Perform use case 'Receive and Place Reinforcements'
	2	Perform use case 'Combat'
	3	To fortify his position, the player moves any number of units from one of his territories to another connected territory.

	4	The player has conquered one territory and gets one territory card from top of the deck.
EXTENSIONS	Step	Branching Action
	2a	Does not perform use case 'Combat'
	3a	After attacking, the player does not fortify his position.
	4a	The player has not conquered any territories and does not get a territory card.
SUB-VARIATIONS		Branching Action
	4'	The player has conquered more than one territories and he gets one territory card.

RELATED INFORMATION	Your Turn
Frequency	Process is repeated until the game is won by a player.
Subordinates	Receive and Place Reinforcements (USE CASE 2), Combat (USE CASE 3).

USE CASE 2	Receive and Place Reinforcements
Goal in Context	The player receives the reinforcements and places them on the game board.
Scope	Risk
Level	Subfunction
Preconditions	1. All 42 territories must be claimed by the players.

Success End Condition	All reinforcements must be placed across territories.	
Failed End Condition	Reinforcements not correctly gathered and placed.	
Actor	Player	
Trigger	Claiming of all 42 territories by the players.	
DESCRIPTION	Step	Action
	1	Count number of territories you control.
	2	Calculate the number of reinforcements the player receives by dividing the number of territories by 3.
	3	The number of reinforcements is greater than 3: Add those many reinforcements to your reinforcement pile.
	4	The player controls an entire continent and the number of reinforcements he adds to his reinforcement pile depends on which continent he controls.
	5	The player has three cards with the same picture.
	6	He turns in the card set to the discard pile.
	7	The player receives number of reinforcements equal to the number on which the golden cavalry piece lies.
	8	The golden cavalry piece is moved to the next higher number.
	9	Player places all the reinforcements across the territories owned by him.
EXTENSIONS	Step	Branching Action

	4a	Player does not control an entire continent: No reinforcements are added to reinforcement pile.
	5a	The player does not have 3 cards with same picture or one Infantry, one Cavalry and one Artillery card: Rejoin step 9
SUB-VARIATIONS		Branching Action
	3'	The number of reinforcements is less than 3 or equal to 3: Add three reinforcements to your reinforcement pile.
	5'	The player has one Infantry, one Cavalry and one Artillery card.
	5''	A wild card is used instead of any of the three types of cards

RELATED INFORMATION	Receive and Place Reinforcements
Frequency	This process must be compulsorily performed once as the first step in 'your turn'.
Superordinate	Your Turn (USE CASE 1)

USE CASE 3	Combat
Goal in Context	Player attacks his opponents and attempts to take territories from them.
Scope	Risk
Level	Subfunction

Preconditions	1. Use Case 'Receive and Place Reinforcements' is completed successfully. 2. The attacker must have atleast 2 units in a territory to attack.
Success End Condition	The attacker defeats the last defending unit from a territory and conquers the territory.
Failed End Condition	The attacker fails to defeat the opponent and does not conquer a territory.
Actors	Attacker, Defender
Trigger	Completion of the use case 'Receive and Place Reinforcements'.

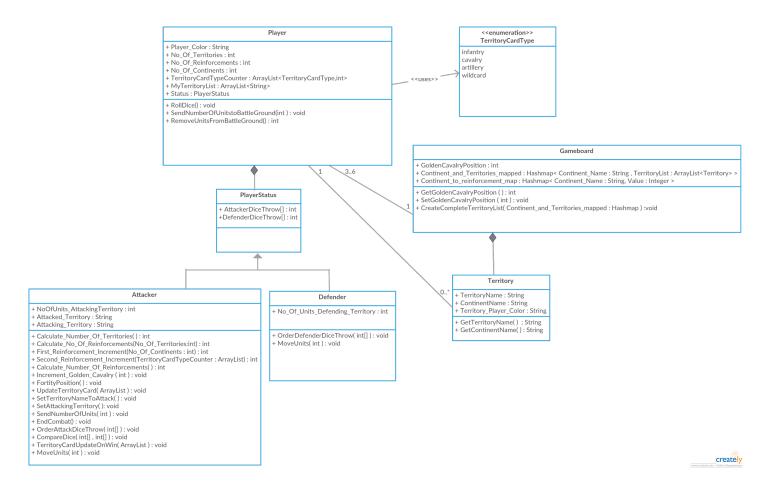| DESCRIPTION	Step	Action
	1	The attacker announces invasion from a territory that he controls to an adjacent enemy's territory.
	2	The attacker sends 3 units from his attacking territory into the battle.
	3	The attacking units are placed on the attacker's spaces on the battleground.
	4	The defender chooses 2 units to defend his territory from the attacking territory.
	5	The defending units are placed on the defender's spaces on the battleground.
	6	To begin the battle, each side rolls 1 dice for each unit attacking or defending.
	8	Both the attacker and the defender arrange their respective dice in order from highest to lowest.

	9	The attacker's highest dice is compared to the defender's highest dice and the player with the highest dice roll wins.
	10	The looser removes his defeated unit from the battleground and puts it back into its unit pile off the board.
	11	Then the attacker and defender compare the next highest dice and the player with the highest dice roll wins.
	12	The looser removes his defeated unit from the battleground.
	13	The attacker has rolled an extra dice as compared to the defender, the extra dice is ignored.
	14	All the remaining units return to their respective territories.
	15	The attacker chooses to invade a territory that he attacked earlier during combat using a different attacking territory adjacent to the defending territory: Rejoin step 2.
	16	The attacker defeats the last defending unit from a territory and has conquered the territory.
	17	The units used by the attacker to win the battle are moved from the battleground to the territory invaded.
	18	The attacker moves additional units from the invading territory to the invaded territory.
EXTENSIONS	Step	Branching Action

	15a	The attacker chooses to end combat part of your turn.
	16a	The attacker does not defeat the last defending unit from a territory: The defender retains his territory.
	18a	The attacker does not move any additional units from the invading territory to the invaded territory.
SUB-VARIATIONS		Branching Action
	2'	The attacker sends 1 unit from his attacking territory into the battle.
	2''	The attacker sends 2 units from his attacking territory into the battle.
	4'	The defender chooses 1 unit to defend his territory from the attacking territory.
	9'	The attacker and the defender have the same number on their dice: The defender wins.
	11'	Then the attacker and defender compare the next highest dice and both the dice have the same number: The defender wins.
	13'	The defender has rolled an extra dice as compared to the attacker, the extra dice is ignored.
	15'	The attacker chooses to invade a new territory: Rejoin step 2.
	15''	The attacker chooses to invade a territory that he attacked earlier during combat using the same attacking territory: Rejoin step 2.

	16'	The attacker defeats the last defending unit from a territory and this is the defender's last unit on the board: The player who was defending the territory is now out of the game and the attacker gets all the player's Territory cards. Until the player has a set of 5 territory cards, he keeps turning them in for bonus reinforcements.

RELATED INFORMATION	Combat
Frequency	This process may or may not be performed in 'your turn'.
Superordinate	Your Turn (USE CASE 1)

2. UML Class Diagram

Player

+ Player_Color : String
+ No_Of_Territories : int
+ No_Of_Reinforcements : int
+ No_Of_Continents : int
+ TerritoryCardTypeCounter : ArrayList<TerritoryCardType,int>
+ MyTerritoryList : ArrayList<String>
+ Status : PlayerStatus

+ RollDice() : void
+ SendNumberOfUnitstoBattleGround(int) : void
+ RemoveUnitsFromBattleGround() : int

<<uses>>

<<enumeration>>
TerritoryCardType

infantry
cavalry
artillery
wildcard

Gameboard

+ GoldenCavalryPosition : int
+ Continent_and_Territories_mapped : Hashmap< Continent_Name : String , TerritoryList : ArrayList<Territory> >
+ Continent_to_reinforcement_map : Hashmap< Continent_Name : String, Value : Integer >

+ GetGoldenCavalryPosition ( ) : int
+ SetGoldenCavalryPosition (int) : void
+ CreateCompleteTerritoryList(Continent_and_Territories_mapped : Hashmap) :void

1   3..6

PlayerStatus

+ AttackerDiceThrow[] : int
+DefenderDiceThrow[] : int

1

Territory

0..*

+ TerritoryName : String
+ ContinentName : String
+ Territory_Player_Color : String

+ GetTerritoryName( ) : String
+ GetContinentName( ) : String

Attacker

+ NoOfUnits_AttackingTerritory : int
+ Attacked_Territory : String
+ Attacking_Territory : String

+ Calculate_Number_Of_Territories( ) : int
+ Calculate_No_Of_Reinforcements(No_Of_Territories:int) : int
+ First_Reinforcement_Increment(No_Of_Continents : int) : int
+ Second_Reinforcement_Increment(TerritoryCardTypeCounter : ArrayList) : int
+ Calculate_Number_Of_Reinforcements( ) : int
+ Increment_Golden_Cavalry (int) : void
+ FortityPosition( ) : void
+ UpdateTerritoryCard(ArrayList) : void
+ SetTerritoryNameToAttack( ) : void
+ SetAttackingTerritory( ): void
+ SendNumberOfUnits(int) : void
+ EndCombat() : void
+ OrderAttackDiceThrow(int[]) : void
+ CompareDice(int[] , int[]) : void
+ TerritoryCardUpdateOnWin(ArrayList) : void
+ MoveUnits(int) : void

Defender

+ No_Of_Units_Defending_Territory : int

+ OrderDefenderDiceThrow(int[]) : void
+ MoveUnits(int) : void

3. Use Case Diagram for the Use Case Model