

## Readme

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We have implemented the three sequence diagrams from the last milestone. We also have completed several other things unrelated to those cases. This readme will outline how you complete these diagrams with the program, and what each file we handed in contains.

You may use the directions below to implement the sequence diagrams from the last milestone.

- Move land unit over ocean tile (shouldn't be possible).  
When you move a unit a path will not appear if the tile that you are hovering above is not accessible by the unit.
- Create a city using a 'Settler' unit on a land tile.  
You can achieve this by selecting the settler then pushing the 'b' button to build a city. If the settler did not move this turn he will change into a city and allow you to name it in a dialog box that pops up.
- Create a 'Warrior' unit from a city.  
This entails you clicking on a city to open its options, then you can go to the production panel and use the JComboBox to select what unit you want to produce. After selecting that unit it will display how many turns you need to wait for the unit to be created. When it is created it can be selected through the city's options.

We will also include two new sequence diagrams to provide a general example for the new use cases (new use cases given below). These new sequence diagrams can be found in two different ArgoUML files with file names corresponding to the use case they represent. These use cases are dealing with attack and defense (combat), and moving units when terrain restrictions and terrain modifiers to distance are involved.

Also in this document we have our old use cases that have been redefined and expanded upon. We will also therefore recommit modified sequence and class diagrams to correspond with changes that have happened in our program since the last milestone. These files will be held in a redefined folder within the sequence diagrams folder. The use cases below are the ones we have sequence diagrams for.

### **New Use Cases:**

#### **Attack and Defense (combat)**

- Moving a unit over an enemy unit causes a fight to happen (someone always dies).
- Moving a unit into a city causes a combat, which if you win you have a chance to take over the city.
- Attack a unit that has modifiers such as terrain bonuses or fortification.
- Attack a unit with a defense of 0.

#### **Moving with Terrain Restrictions and Movement Modifiers**

- When moving onto a mountain (or similar difficult terrain) take into account the movement modifier of the tile
- When you move over a tile with a road (or railroad) take into account the movement modifier of the tile
- Move a land unit over ocean (or other restricted tiles for any type of unit)
- Queue up a movement path with pathfinding that covers multiple types of terrain and modifiers

#### **Redefined Use Cases (milestone 1 and 2):**

- Save a game that is currently under way in order to quit and continue it later  
This entails us taking the current state of the game and storing it in a file that is to be loaded at a later time.
- Load a saved game from a file  
This entails being able to open the save document and rendering all the specified tiles and units/cities.
- Start a new game for 2 players  
This entails generating a map from a text file that has two starting locations. You may achieve this by selecting these options when starting a game.
- Win a game  
This entails a player wiping all of an opponent's units off the map, and will be a simple check to see if the player's units array and cities are non-existent.
- Queue up a movement path that has been found via a path finding algorithm to be the most efficient manner of moving  
This algorithm will take into account several things such as: distance, impassable tiles, obstacles, movement costs, roads, etc.
- Fortify a unit in a city  
This entails going into the City View and selecting a unit to fortify. This unit then gains a bonus to its defensive stats if the city is attacked.
- Use a combat unit to attack an enemy unit  
This entails a player moving his unit into an enemy unit, at which point in time each unit takes damage accordingly. There are two outcomes here, they are:
  - a. Kill the enemy  
This entails removing the enemy from the map and the tiles unit array.
  - b. Get killed by enemy  
This entails removing your unit from the map and the tiles unit array.
- Use a combat unit to attack a city (both with and without units in it)  
When the city has units in it (fortified or not) a combat will occur in the same manner as the last use case. If the city does not have units or has lost all its units then the city is randomly decided to either be destroyed or taken over.
- Open the research menu and select a technology path  
This entails us creating a new Research View and passing it the player's current research advancements then allow the player to select his next research path.
- Press the turn done button to signify the end of your turn  
This entails that the screen would switch to the next player's turn, and that everything which occurs at the end of the turn occurs.
- Change the resource that a city is using  
This entails the opening of the City View pane (by clicking on a city) then selecting a resource that is not already selected from within the Cities area
- Increase the level of your city and assign it a new resource to collect

This entails that you have been collecting enough food for your city to grow to cause it to level up. To assign it a new resource you can follow the above use case.

- Change what your city is producing  
This is similar to one of our sequence diagrams.
- Pull up a help document for any aspect of the game, units, movement, production, etc.  
This entails you selecting a help menu item from the main View causing a dialog box to pop up.
- Surrender/Quit game  
This causes your towns to stop producing units and to sit idle. This means that it is easier for players to take your towns. If you leaving means the other player is no longer playing against someone then the other player automatically wins.
- Load a unit into a transport  
This entails you moving your unit onto the same tile as the transportation unit. This unit then joins the transport and moves with the transport when the transport moves. The unit can then leave the transport by clicking the transport and selecting the unit from the unit viewer and moving the unit.
- Use a worker to Build a tile modification (road, irrigation, etc.)  
This entails a user selecting the unit and then pressing a hotkey corresponding to the desired action. The unit then performs this action if it is not out of action for the turn otherwise it is queued up to occur the next turn.
- Create a city using a 'Settler' unit on a land tile.  
Done as a sequence diagram (described above)
- Apply a name to a newly created city.  
This occurs when you create a city and a dialog box pops up allowing you to name your city.
- Create a 'Warrior' unit from a city.  
Done as a sequence diagram (described above).
- Create a more advanced unit from a city  
This entails that you have the necessary research to create that unit. Then you can just select a unit to build within City View and it is made after several turns.
- Create a Settler from a city (should reduce level of city by one).  
This is the same as creating a unit except the level of your city is reduced by one as your population decreases when you make the settlers.
- Cancel the creation of a unit.  
This entails you to open the CityView and to chose to stop producing.
- Attempt to move a unit to a tile that will take more than one turn (Should queue up).  
This entails the user to click on a unit and select g then drag the path to a distance that is greater than that units max movement per turn. Note that a G appears above the Unit.
- Move a water unit over ocean tiles.  
Similar to moving a unit regularly
- Move an air unit over ocean tiles.  
Similar to moving a unit regularly
- Move into an owned city  
After doing so you may select this unit by opening the CityView, going to the selection combo box and then choosing the unit to control that is in the city.
- Move into an owned unit.  
After doing so when you click on the tile a unit selection box pops up that allows you to select which unit you want to control.

- Move into an opposing unit (FIGHT).  
Done as sequence diagram (for this milestone)
- Move land unit over ocean tile (shouldn't be possible).  
Done as sequence diagram (described above).
- Move ocean unit over land tile (shouldn't be possible).  
This is similar to the use case above.
- Display map of terrain of size 10 by 10 (units in tiles)  
Within the code you may set the viewing size of the map by removing and adding comments within the MapView file. By doing so a different sized map will be loaded when the program begins. By default what we see of the map is set to 19 x 21 tiles.
- Move map view north by five units  
You may do this by right clicking on the map 5 units north or using the "wasd" keys to move the view.
- Move player's character west by five units  
This can currently be completed by selecting a unit, pushing "g" and then left clicking on the map where you wish them to finish.