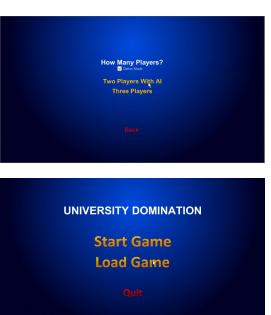


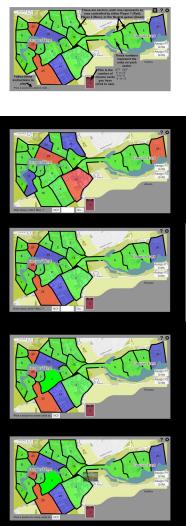
## Main menu UI Tests

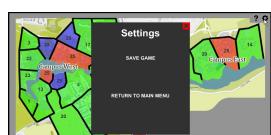
<u>Test Number</u>	<u>Brief Description of Test</u>	<u>Associated Fit Criteria and User Requirements</u>	<u>Expected Result</u>	<u>Evidence</u>	<u>Actual Result</u>
M1	The program will load up on a university computer	<b>4:</b> 4.0) Must run well on laptops and tablets 4.0a) The game must be able to load.	The program for our software should load in no longer than 15 seconds.	Executable was run on 3 separate university computers, and all loaded the game in under 15 seconds.	The program loaded in under 15 seconds.
M2	Main menu appears once game is started	<b>3:</b> 3.1) Clear button based gameplay	Main menu appears after starting the game		Main menu appears after starting game
M3.1	Game begins with 2 players and an AI player when selected	<b>8:</b> 8.0) The game may only be started with 2 or more local players	Game starts with 3 players on the map (red, blue and green (AI))		Game starts with 3 players on the map (red, blue and green (AI))
M3.2	Game begins with 3 players and an AI player when selected	<b>8:</b> 8.0) The game may only be started with 2 or more local players	Game starts with 3 players on the map (red, blue, green and yellow(AI))		Game starts with 4 players on the map (red, blue, yellow and green (AI))
M4	Demo mode starts when selected from main menu when starting game	<b>5:</b> 5.0) Must have a demonstration mode for easy use with visitors	Game will return to main menu after 3 minutes of inactivity		After 3 mins, the exited its main game and returned to the main menu
M5	Load a previously saved game	<b>6:</b> 6.1) Save system	Clicking the load option and selecting a game takes you into that game as it		After clicking on the game started from where it was saved

was when  
saved



### Ingame UI tests

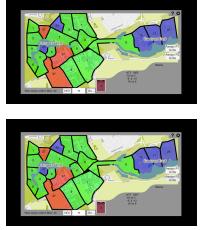
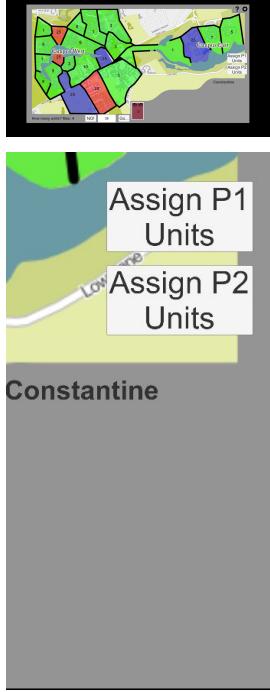
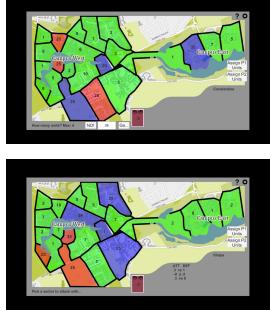
<u>Test Number</u>	<u>Brief Description of Test</u>	<u>Associated Fit Criteria and User Requirements</u>	<u>Expected Result</u>	<u>Evidence</u>	<u>Actual Result</u>
I1	The game map should have a distinctive look of a board game- Have the test group answer questions on the resemblance of our map and whether or not the map has this distinctive look.	<b>2:</b> 2.1) <i>Must have a distinct visual playing area (board)</i> 2.2) <i>Must have a chance based resolution system (dice)</i>	All 10 users and the client should see a resemblance between the game-map and a board game.	See "Test Group Results"	Out of the 10 people in the test group, all 10 of them answered that they felt the game map represented that of a game map.
I2	The game interface should be clear to a new user - Have our test group fill out a questionnaire after starting a new game.	<b>3:</b> 3.2) <i>Clear button based gameplay</i>	The questionnaire must have at least 80% of questions with a score of 80% or higher showing the UI is clear.	See "Test Group Results"	Out of the 10 people in the test group, 9 out of them said that they thought that the interface was clear. This means 90% of the users said the game interface was clear and therefore over the 80% threshold.
I3	The game interface should be easily navigate able to a new user.	<b>3:</b> 3.2) <i>Clear button based gameplay</i>	The user should be able to understand and easily navigate through the interface using buttons.		<p>Easily accessible help menu, denoted by a question mark.</p> <p>Instructions, step by step on how to attack. The instructions change as you progress.</p>

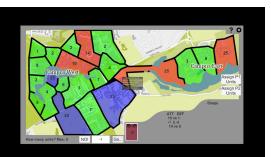
I4.1	Ensure help button works correctly	<b>3:</b> <b>3.2) Clear button based gameplay</b>	Clicking the help button (?) brings up the help overlay	 	Clicking the help button brought up the help overlay
I4.2	Ensure close help button works correctly	<b>3:</b> <b>3.2) Clear button based gameplay</b>	Clicking the close help button (X) closes the help overlay after opening the help overlay	 	Clicking the close button closed the help overlay
I4.3	A user should be guided by tips and instructions when playing the game to understand the interface.	<b>3:</b> <b>3.1) System must include instructions</b> <b>3.3) System could include tool tips</b>	When a game is started the player should be able to access tooltips that show how the controls work.		The help button is accessible from the start of the game, and shows the user what everything does.
I5.1	Ensure settings button works correctly	<b>3:</b> <b>3.2) Clear button based gameplay</b>	Clicking the settings button ( <b>cog symbol</b> ) brings up the settings menu	 	Clicking the help button brought up the settings menu
I5.2	Ensure close settings button works correctly	<b>3:</b> <b>3.2) Clear button based gameplay</b>	Clicking the close help button (X) closes the settings menu after opening the settings menu	 	Clicking the close button closed the Settings menu

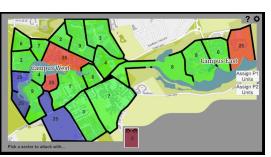
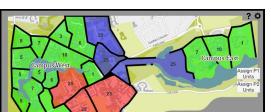
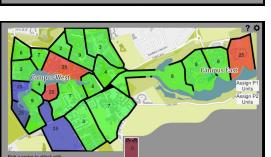
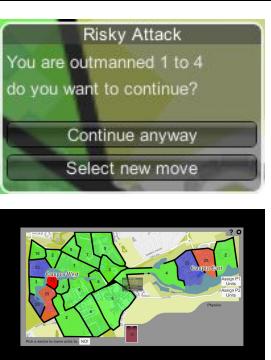
I5.3	<b>(Normal)</b> Attempt to close settings menu after performing an action.	<b>4:</b> <i>4.0) Must run well on laptops and tablets</i>	Options menu opens then closes.	 <p>The first screenshot shows the Settings menu open over a map. The second screenshot shows the menu partially closed. The third screenshot shows the menu completely closed, revealing the map underneath.</p>	When swapping from James to Offices, user was still able to close the menu.
I5.4	Ensure the save option saves the game	<b>6:</b> <i>6.1) Save system</i>	Clicking the save option saves the game	 <p>A screenshot of the Load Game menu, which lists saved games. The "Back" button is visible at the bottom right.</p>	Previously saved games could be found in the load game menu from the main menu

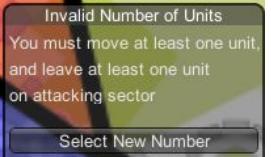
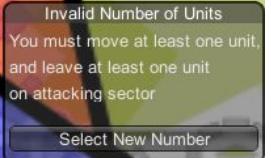
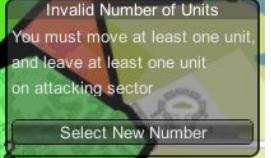
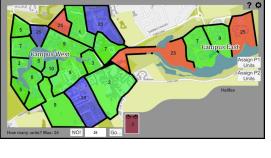
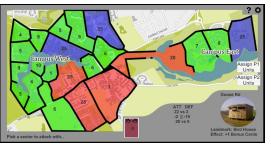
## Games tests

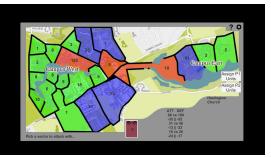
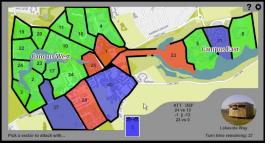
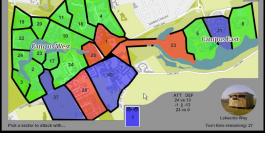
<u>Test Number</u>	<u>Brief Description of Test</u>	<u>Associated Fit Criteria and User Requirements</u>	<u>Expected Result</u>	<u>Evidence</u>	<u>Actual Result</u>
G1	Assess landmarks that are within the game correspond to those on campus.	<b>7:</b> <i>7.2) Landmarks will feature in specific sectors possibly giving users advantages/disadvantages.</i>	Landmarks should be clear and obvious that they resemble a specific place on campus.	Landmark on section goose road  Landmark: BirdHouse Effect: +1 Card	The landmarks resemble to the specific place on campus and are clearly shown in the game.
G2	Confirm the presence of landmarks in each sector by clicking on the sector	<b>7:</b> <i>7.2) Landmarks will feature in specific sectors possibly giving users advantages/disadvantages</i>	Landmarks are present for the sectors	 Charles XII Turn time remaining: 25  Astrocampus Turn time remaining: 19	All sectors had landmarks and accompanying images
G3.1	<b>(Normal)</b> Increment the turn and note the change in the top rightmost territory (1 adjacent territory).	<b>10:</b> <i>10.1) Units given based off adjacent territories</i>	The territory gains 1 unit.	 	Constantine incremented by 1, as expected.
G3.2	<b>(Normal)</b> Increment the turn and note the change in a territory with 4 adjacent territories.	<b>10:</b> <i>10.1) Units given based off adjacent territories</i>	The territory gains 4 units.	 	Offices gains 4 units, as expected.

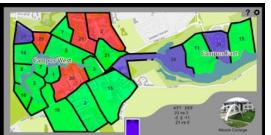
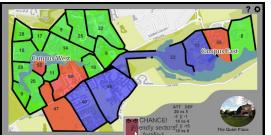
G3.3	<b>(Normal)</b> Increment the turn and note the change in a territory with 2 adjacent territories.	<b>10:</b> <i>10.1) Units given based off adjacent territories</i>	The territory gains 2 units.		Langwith gains 2 units, as expected.
G4	Click on the area and adjacent sector flash. (normal)	<b>3:</b> <i>3.1) System must include instructions</i>	The sector of "Constantine" will be clicked. In response to this "Langwith" will be the only sector to flash.	N/A	When Constantine is clicked Langwith flashes, unable to provide proof due to nature of flashing.
G5	<b>(Normal)</b> When an area of the game is clicked; it will display the correct information at the bottom right of the screen.	<b>3:</b> <i>3.1) System must include instructions</i>	When the sector of "Constantine" is clicked, it will display the relevant information at the bottom right of the screen (The label: Constantine)		The correct information is displayed.
G6.1	<b>(Normal)</b> Attempt to move units to an adjacent friendly territory with 1 unit.	<b>7:</b> <i>7.1) Game will include colleges as playable sectors</i>	Derwent: 24 Shops: 1  Moving 23 units from "Derwent" to "Shops".  Expect 1 unit remaining at		1 Unit remaining at "Derwent", 24 units at "Shops".

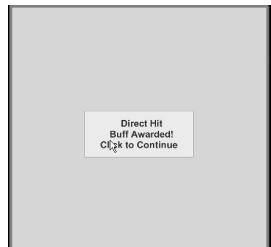
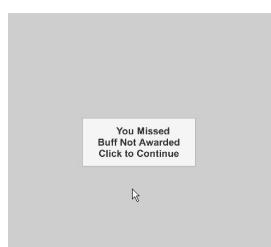
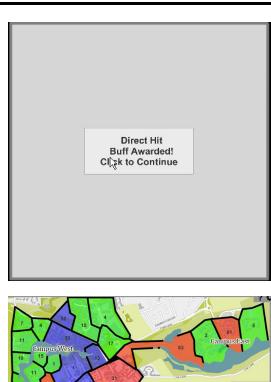
			"Derwent", 24 units at "Shops".		
G6.2	<b>(Erroneous)</b> Attempt to move all units to an adjacent friendly territory.	<b>7:</b> <i>7.1) Game will include colleges as playable sectors</i>	Shops: 24 Derwent: 1  Moving 24 units from "Shops" to "Derwent"  I expect an error message.	 	An error message was given.
G6.3	<b>(Erroneous)</b> Attempt to move -1 units to a adjacent friendly territory	<b>7:</b> <i>7.1) Game will include colleges as playable sectors</i>	The correct error message is given.		The correct error message is given.
G6.4	<b>(Erroneous)</b> Attempt to move 0 units to adjacent friendly territory	<b>7:</b> <i>7.1) Game will include colleges as playable sectors</i>	The correct error message is given.		The correct error message is given.
G6.5	<b>(Erroneous)</b> Attempt to move a string "a" of units to adjacent friendly territory	<b>7:</b> <i>7.1) Game will include colleges as playable sectors</i>	The correct error message is given.	 	No message was shown but the units were not moved
G7.1	<b>(Normal)</b> Start the game to distribute units and players 3 times and note the results for each using 2 player + AI mode	<b>2:</b> <i>2.2) Must have a chance based resolution system (dice)</i>	The resultant placements of players and units should follow an approximately even distribution.		Random distribution of starting sectors. Players all had 3 sector with 25 units, the AI had a random number across the remaining sectors

G7.2	<b>(Normal)</b> Start the game to distribute units and players 3 times and note the results for each using 3 player mode	<b>2:</b> <i>2.2) Must have a chance based resolution system (dice)</i>	The resultant placements of players and units should follow an approximately even distribution.		Random distribution of starting sectors.
G8.1	<b>(Normal)</b> Start the game and check each sector to see if it was assigned units in 2 player + AI mode	<b>2:</b> <i>2.2) Must have a chance based resolution system (dice)</i>	All territories are assigned units.	 	All territories assigned units as expected.
G8.2	<b>(Normal)</b> Start the game and check each sector to see if it was assigned units in 3 player	<b>2:</b> <i>2.2) Must have a chance based resolution system (dice)</i>	All territories are assigned units.	 	All territories assigned units as expected.
G9.1	<b>(Extreme)</b> Attempt to attack an adjacent territory with 1 unit.	<b>2:</b> <i>2.2) Must have a chance based resolution system (dice)</i>	Attack occurs normally, with a confirmation message.		Attack occurred normally, with a confirmation message.
G9.2	<b>(Erroneous)</b> Attempt to attack an adjacent territory with all of the units in a territory.	<b>2:</b> <i>2.2) Must have a chance based resolution system (dice)</i>	Error message prevents attack.		The error message prevents the attack.

G9.3	<b>(Erroneous)</b> Attempt to attack an adjacent territory with -1 unit	<b>2:</b> <i>2.2) Must have a chance based resolution system (dice)</i>	The correct error message is given.	 	The correct error message is given.
G9.4	<b>(Erroneous)</b> Attempt to attack an adjacent territory with 0 units	<b>2:</b> <i>2.2) Must have a chance based resolution system (dice)</i>	The correct error message is given.	 	The correct error message is given.
G9.5	<b>(Erroneous)</b> Attempt to attack an adjacent territory with 1 more unit than is in the original territory.	<b>2:</b> <i>2.2) Must have a chance based resolution system (dice)</i>	The correct error message is given.	 	The correct error message is given.
G9.6	<b>(Normal)</b> Attempt to attack an adjacent territory with more units than are in the adjacent territory.	<b>2:</b> <i>2.2) Must have a chance based resolution system (dice)</i>	Attack occurs normally.		Attack occurred normally.
G10.1	<b>(Erroneous)</b> Attack a territory with 0 times the number of the enemies units.	<b>12:</b> <i>12.2) If user tries to do something that is okay but ill advised show a warning</i>	Invalid number of units error message.		Invalid number of units error message.

G10.2	<b>(Normal)</b> Attack an enemy with 0.01 times the number of enemy units.	<b>12:</b> <b>12.2)</b> If user tries to do something that is okay but ill advised show a warning	Expect a message saying that the attacker is outnumbered 100 to 1.		Message saying that the attacker is outnumbered 100 to 1.
G10.3	<b>(Erroneous)</b> Attack an enemy with the same number of enemy units.	<b>12:</b> <b>12.2)</b> If user tries to do something that is okay but ill advised show a warning	Expect attack to not give a risky attack message.		Attack occurred without giving a risky attack message.
G10.4	<b>(Extreme)</b> Attack an enemy with 0.66 times the number of enemy units.	<b>12:</b> <b>12.2)</b> If user tries to do something that is okay but ill advised show a warning	Expect no risky attack message.		No error message was given.
G10.5	<b>(Normal)</b> Attack an enemy with the 0.5 times the number of enemy units.	<b>12:</b> <b>12.2)</b> If user tries to do something that is okay but ill advised show a warning	Expect risky attack message.		Risky attack message given.
G11.1	AI player only moves after the last players turn (2 or 3 depending on mode)	<b>8:</b> <b>8.1)</b> If two player, a third "neutral" player will be added that can only defend territories and hence will not have a turn	AI controlled sectors only change their unit counts (i.e. move) between player 2 and 1 (or 3 and 1)	 	AI player moved units between player 2 and player 1's turn
G11.2	AI player does not receive new units after turns	<b>8:</b> <b>8.1)</b> If two player, a third "neutral" player will be added that can only defend territories and hence will not have a turn	After playing a turn, the total of AI controlled units will not		Following the AI's moving of units, it did not gain any units. The number of AI units remained the same overall

			increase when the players do		
G11.3	AI player will move its units in order to defend its territories	<b>8:</b> <b>8.1)</b> If two player, a third “neutral” player will be added that can only defend territories and hence will not have a turn	When it is the AI’s turn to move units, it will move units to sectors that are bordering enemy sectors	 	AI moved units from its sectors towards sectors neighbouring enemy sectors to fortify that sector
G12.1	Chance cards are awarded to player each time they take a sector	<b>2:</b> <b>2.1)</b> Must have a distinct visual playing area <b>9:</b> <b>9.1)</b> Multiple different chance cards should be available in game <b>9.3)</b> Players who capture a territory will receive a chance card at the end of their turn	After taking a sector, the number of chance cards for the player increases	 	Red takes The Quiet Place sector and their chance card count increases by 1
G12.2	Players can only use the number of chance cards they have	<b>2:</b> <b>2.1)</b> Must have a distinct visual playing area <b>9:</b> <b>9.1)</b> Multiple different chance cards should be available in game	Clicking on the chance card should reduce the number of chance cards the player has by 1	 	Red had 6 chance cards, after using them all up at once, the number goes to 0 and will not go lower or give the player any more bonuses
G12.3	Players are told what a chance card has done after using one	<b>2:</b> <b>2.1)</b> Must have a distinct visual playing area <b>3:</b> <b>3.1)</b> System must include instructions <b>9:</b> <b>9.1)</b> Multiple different chance cards should be available in game	After clicking a chance card, the bonus will be applied to the game and text appears next to the chance card telling the user what the chance was		After using a chance card, text appeared telling the player the effect the chance card had

G13.1	Mini game is only triggered when a player takes a sector with the PVC in it	<b>11:</b> <b>11.4) A mini game shall play upon capturing a PVC territory</b>	Mini game starts over the top of the game map when a sector with PVC is captured		PVC was in Halifax, Red takes Halifax and the minigame appeared
G13.2	Mini game ends when floating sprite is clicked	<b>11:</b> <b>11.4) A mini game shall play upon capturing a PVC territory</b>	Mini game closes once the floating sprite has been clicked, telling the player they were successful		Player must click to continue, which then closes the minigame and returns the player to the game, with the next turn
G13.3	Mini game ends when a player misses the floating sprite, clicking the background	<b>11:</b> <b>11.4) A mini game shall play upon capturing a PVC territory</b>	Mini game closes once the background has been clicked, telling the player they were unsuccessful		After missing the floating box, the game tells the player do not get a buff
G13.4	A reward is given to the player if they win the mini game by clicking the floating sprite	<b>11:</b> <b>11.4) A mini game shall play upon capturing a PVC territory</b> <b>11.5) A reward shall be given to the player who succeeds in the mini game</b> <b>9:</b> <b>9.1) Multiple different chance cards should be available in game</b> <b>9.3) Players who capture a territory will receive a chance card at the end of their turn</b>	Minigame tells player they won a bonus, the bonus being an extra chance card (as well as the card from capturing the sector)		The player received 2 chance cards from taking this sector and winning the minigame
G14.1	Sudden death mode is activated after X turns	<b>1:</b> <b>1.3) Sudden death mode activated after 30 mins</b>	Sudden death mode starts after X turns, evident by the sudden death		Sudden death indicator appeared after X turns

			popup appearing		
G14.2	When sudden death is active, sectors bordering enemy sectors will lose units each turn	<b>1:</b> <b>1.3) Sudden death mode activated after 30 mins</b>	After each turn, the number of units in sectors next to enemy sectors decreases (both player sectors and the AI)	 	The number of units in sectors neighbouring enemy sectors decreased at the end of the turn
G15.1	Turn progresses after 30 seconds if nothing is done	<b>1:</b> <b>1.0) Game should last a decent amount of time</b>	After 30 seconds, the game changes to the next players turn	 	After 30 seconds, the game changed to the next players turn
G15.2	Counter resets if a player completes their turn and progresses to next turn	<b>1:</b> <b>1.0) Game should last a decent amount of time</b>	Once the player has completed their turn (move units to another sector) the timer resets and its the next players turn	 	After blue moved to Langwith, the timer reset and the turn progressed to the next player
G15.3	Turn progresses to next player when timer runs out, even if the player is in the middle of a turn	<b>1:</b> <b>1.0) Game should last a decent amount of time</b>	The UI resets for the next player (no sector is selected, unit allocation resets)	 	UI reset once the timer ticked past 0, both if a player had clicked on a sector to move units from and when they had selected an amount too

