

Deliverable C, Testing Documentation

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Objectives

This documentation aims to provide evidence of high quality verification and validation of work completed on the Biosecurity Game project as well as outlining the tests performed to ensure all areas of the system are working to specification.

Testing Summary and Test Strategy

Testing was carried out on the production server provided by UWA. The server was accessed and used for testing remotely. Testing consisted of two components: manual inspection and automated browser bot testing. Manual inspection was used primary for user interface testing and for complex interactions that bots could not be programmed to test. Examples include testing for the chat box and slider inputs. Automated testing was used wherever it was possible to utilise browser bots. The bots provide several advantages over manual testing, included faster and more accurate tests. This allows a test to be rerun multiple times in quick succession to ensure that subsystems are functioning consistently.

Testing was carried out on

Testing Process:

For all tests –

- 1) Type into the address bar of the chosen web browser the URL for the administration page and login.
- 2) Start a new session through the “Create a new Session” button
- 3) Choose “Biosecurity Game” from the drop down menu
- 4) Choose an even or odd number of players to play the game
- 5) Choose an even or odd number of groups
- 6) Run the Session as a demo, playing the game on the same computer

Test 1 – Protection value slider

Aim –

Determine whether the slider operates as intended by client.

Functionality to test –

- Slider should appear on each participant's screen
- The range of values should be from zero to infinity
- The protection percentage given should be displayed dynamically as the slider is moved
- The protection value for each player should be the same if their protection effort is the same
- The protection offered should never be 100% even at infinite money spent on protection

Process –

- Have multiple participants run the game making their way through the game to the first biosecurity round (it may be possible to isolate the biosecurity game from the other modules ie the lottery).
- Verify that there is a slider on each player's screen in the correct position for each
- Test that for each players slider they can slide from 0 at the far left to infinity on the far right
- Verify for each player that the protection value changes as the slider is moved
- Verify that at infinite protection effort, the percentage protection is not 100%
- Have each player select a random value of protection (taking note of it) and tell them to proceed
- In the next round verify that the amount used for protection was correctly deducted from the players' funds

Test Metric –

Use Case	Test Cases	Expected Result	Results and Grading
User moves the protection slider	Click and drag slider within the displayed track	Slider moves as user commands and displays dynamically cost of protection as well as the chance of an incursion	Pass. Working as expected after manual inspection.
	Click and attempt to drag indicator beyond right edge of track	Slider stops tracking at the end of the track	Pass. Working as expected after manual inspection.
	Click and attempt to drag indicator beyond left edge of track	Slider stops tracking at the end of the track	Pass. Working as expected after manual inspection.
User moves slider to set protection	Slider is dragged to left edge of track	As soon the slider is placed, the displayed <i>Cost</i> changes to \$0 and <i>Protection Protection</i> changes to 0%	Pass. Working as expected after manual inspection. (Figure 1.2)
	Slider is dragged to right edge of track	As soon the slider is placed, the displayed <i>Cost</i> changes to \$[max_value] (tested at \$10) and <i>Protection Protection</i> changes to 99%	Pass. Working as expected after manual inspection. (Figure 1.3)
	Slider is dragged to a random location	As soon the slider is placed, the displayed <i>Cost</i> changes to [the slider's position on the track from 0-1]*[max_value] and <i>Protection Protection</i> changes to an appropriate value (see process)	Pass. Working as expected after manual inspection. (Figure 1.4) (Figure 1.5)
Outbreak chance	All players select minimum protection	In all rounds an incursion occurs	Pass. After running 10 bots through providing the minimum protection, 150/150 rounds incursions occurred.

	All players select the middle protection value	For the middle protection value (should be 90% protection provided) roughly 10% of the rounds suffer incursions	
	All players select the max protection	For the max protection value (should be 99% protection provided) Roughly 1% of the rounds suffer incursions	Pass. After running 10 bots through providing maximum protection 1/150 rounds were incursions (Figure 1.8)

Evidence of testing –

Time left to complete this page: 0:0:36

Biosecurity Game Round 1 of 15

Your current funds are: 25.0
How much would you like to spend to protect your crops?
Please drag the slider to adjust the amount of money you wish to spend.

Cost: \$7.50
Protection provided: 90%
[Next](#)

Figure 1.1: Slider at middle protection value (\$7.50)

Time left to complete this page: 0:0:26

Biosecurity Game Round 1 of 15

Your current funds are: 25.0
How much would you like to spend to protect your crops?
Please drag the slider to adjust the amount of money you wish to spend.

Cost: \$0.00
Protection provided: 0%
[Next](#)

Figure 1.2: Slider at minimum protection value (\$0.00)

Time left to complete this page: 0:8:14

Biosecurity Game Round 1 of 15

Your current funds are: 25.0
How much would you like to spend to protect your crops?
Please drag the slider to adjust the amount of money you wish to spend.

Cost: \$15.00
Protection provided: 99%
[Next](#)

Figure 1.3: Slider at maximum protection value (\$15.00) also showing that for this max value the probability of no incursion is not 100%

Time left to complete this page: 0:1:26

Biosecurity Game Round 1 of 15

Your current funds are: 25.0
How much would you like to spend to protect your crops?
Please drag the slider to adjust the amount of money you wish to spend.

Cost: \$10.52
Protection provided: 96%
[Next](#)

Figure 1.4: Slider at arbitrary protection value

THE UNIVERSITY OF
WESTERN
AUSTRALIA

Results for 1 of 15

Hello Ganymede

The amount of protection you provided this round was \$10.52

The cost for produce is \$5.00

The revenue for each round if an incursion didn't occur is \$25.00

There was no incursion

Your total revenue is \$25.00

Your total cost is \$15.52

Each Player's Protection:
Ganymede --- Protection: \$10.52
Prometheus --- Protection: \$7.50
Your current funds: 34.48 Dollars.

[Next](#)

Figure 1.5: Result of round after slider set as in Figure 1.4

Time left to complete this page: 0:50

Time left to complete this page: 0:39

Biosecurity Game Round 2 of 15

Biosecurity Game Round 2 of 15

Your current funds are: 32.58

How much would you like to spend to protect your crops?

Please drag the slider to adjust the amount of money you wish to spend:

Cost: \$4.2

Protection provided: 72%

[Next](#)

Figure 1.6.1 and 1.6.2: Two separate players under the same conditions with their sliders at the same ‘cost value’ and their ‘protection provided’ values also the same

Player					Group			Subsession	
up	Role	Protection	Cost	Payoff	Id in subsession	Incursion	Total protection	Round number	Id in group
		0.72	4.20	15.80	1		2.90	3	1
		0.72	4.20	15.80	1		2.90	3	2
		0.72	4.20	15.80	1		2.90	3	3
		0.72	4.20	15.80	1		2.90	3	4

Figure 1.7: Results summary of same game showing that all values are the same for players if their sliders are set the same

Biosecurity Game: session w549g557								
		Description	Links	Edit	Monitor	Results	Payments	
		Biosecurity [Round 15]						
		Player					Group	
Group	Role	Funds at rounds end	Protection	Cost	Payoff	Id in subsession	Incursion	Incursion count
		75.00	0.99	15.00	5.00	1		1
		100.00	0.99	15.00	5.00	2		1
		100.00	0.99	15.00	5.00	3		1
		100.00	0.99	15.00	5.00	4		1
		100.00	0.99	15.00	5.00	5		1

Figure 1.8: 10 separate bots completing 15 rounds each with 1 of the 150 total rounds being incursions for maximum protection.

Test 2 – Regression Test

Aim –

Ensure that it is possible to change the session variables (number of players, number of groups, cost value, revenue value and risk probabilities) and that the changes operate as expected.

Functionality to test –

- The number of players per group can be varied and operates as intended
- The total number of groups can be varied
- The cost of protection can be varied
- The Revenue for a successful harvest can be varied
- The risk probability can be varied

Process –

- Run a new session as normal
- Start multiple bot enabled sessions each with a different number of players
- Run one game with all settings as standard
- For one game alter the cost of protection
- For one game alter the payoff for each successful round
- For one game alter the risk probability
- For one game alter all variables
- Run each game using bots and wait until their completion
- Verify that each game ran to completion
- For each game verify from the admin result tab that the altered variables provided the expected outputs

Test Metric

Use Case	Test Case	Expected Result	Results and Grading

Setting the number of players per group. (Same as number of total players)	One player per group (the minimum number of players that can be in a group together)	Can create a game with one player and it can run to completion	Pass. One player groups completed the entire game (Figure 2.1.1)
	Four players per group (the average number of players to be in a group together)	Can create a game with four players and it can run to completion	Pass. Four player groups completed entire game (Figure 2.1.3)
	Ten players per group (the maximum number of players to be in a game together)	Can create a game with ten players and it can run to completion	Pass.Ten player groups completed entire game
Setting the number of groups per session.	One player per group in a session of 8 players	8 groups are generated. Each containing any player. The session runs to completion using default values for all other parameters	Pass. One player groups were formed from the eight players and completed entire game (Figures 2.2.1.1 and 2.2.1.2)
	Two player per group in a session of 8 players	4 groups are generated. Each containing any 2 players. The session runs to completion using default values for all other parameters	Pass. Two player groups were formed from the eight players and completed entire game (Figures 2.2.2.1 and 2.2.2.2)
	Three player (max) per group in a session of 8 players	3 groups are generated. Each containing at least 2 players. The session runs to completion using default values for all other parameters	Pass. Three player groups were formed and one player taken from first group to form a group of 2 from the eight players and completed entire game

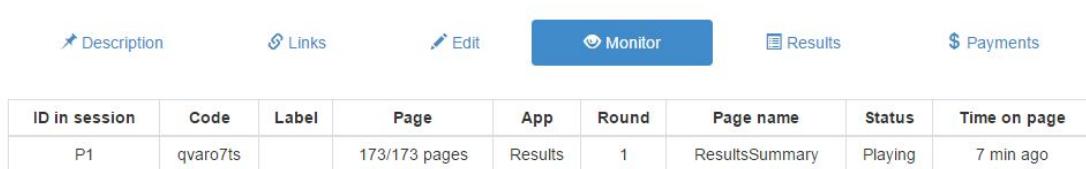
			(Figures 2.2.3.1 and 2.2.3.2)
	7 player (max) per group in a session of 8 players	2 groups are generated. Each containing at least 2 players. The session runs to completion using default values for all other parameters	Pass. A six player group and a two player group were formed from the eight players and completed entire game (Figures 2.2.4.1 and 2.2.4.2)
An admin sets the value of upkeep, revenue, maximum protection and starting funds at the start of a session	The value is set to a decimal value (5.123456789)	The value is updated in game in all instance where it is used.	Completed: Pass Upkeep: Pass Revenue: Pass Maximum protection: Pass Starting fund: Pass (Figures 2.3.1.1 and 2.3.1.2)
	The value is set to negative value (-5)	The value is updated in game in all instance where it is used.	Completed: Fail Upkeep: Pass Revenue: Pass Maximum protection: Fail Starting fund: Pass (Figures 2.3.2.1 and 2.3.2.2)
	The value is set to a non-number value (5.5.5)	A form error message appears when the configuration is submitted	Upkeep: Pass Revenue: Pass Maximum protection: Pass Starting fund: Pass (Figures 2.3.3)
	The value is set to string ('value')	The form field does not allow entry for non-number characters to be entered	Upkeep: Pass Revenue: Pass Maximum protection: Pass

			Starting fund: Pass (Figures 2.3.3)
	The value is left unchanged	The in-game value is set as the default value in all instance.	Completed: Pass Upkeep: Pass Revenue: Pass Maximum protection: Pass Starting fund: Pass (Figures 2.3.4)
An admin ticks the <i>dynamic finances</i> checkbox	The <i>upkeep</i> variable is updated after every rounds based on the contents of the <i>dynamic_finaces.csv</i> file	In a given round, <i>upkeep</i> , is set to the value of the corresponding row of the Upkeep column in <i>dynamic_finaces.csv</i> .	Pass: Game completed with browser bots Pass: manual inspection shows that values are being used. (Figures 2.4.1-3)
	The <i>max_protection</i> variable is updated after every rounds based on the contents of the <i>dynamic_finaces.csv</i> file	In a given round, <i>max_protection</i> , is set to the value of the corresponding row of the Protection column in <i>dynamic_finaces.csv</i> . The protection values output with the protection slider is adjusted accordingly	Pass: Game completed with browser bots Pass: manual inspection shows that values are being used. (Figures 2.4.1-3)
	The <i>revenue</i> variable is updated after every rounds based on the contents of the <i>dynamic_finaces.csv</i> file	In a given round, <i>revenue</i> , is set to the value of the corresponding row of the Upkeep column in <i>dynamic_finaces.csv</i> .	Pass: Game completed with browser bots Pass: manual inspection shows that values are being used. (Figures 2.4.1-3)
An admin ticks the <i>set_leader</i> checkbox	Every round, a different player is assigned the role “leader”.	Every player is assigned as the “leader” once before a player assigned as “leader” again. There is always exactly one “leader”	Pass: The leader is selected systematically from the group. (Figure 2.5.1)

	The correct pages are displayed for players given their role	In any given round, the “leader” completes the SoloRound page before all other players complete OtherRound. When not completing a page, a player is shown a wait page.	Pass
	Players that aren’t the leader are shown the leader’s contribution	The OtherRound Page correctly displays the leader player’s <i>cost</i> variable (the amount of ingame money they chose to spend on protection that round)	Pass (Figure 2.5.2)

Evidence of testing -

Biosecurity Game: session `unwwbeas`

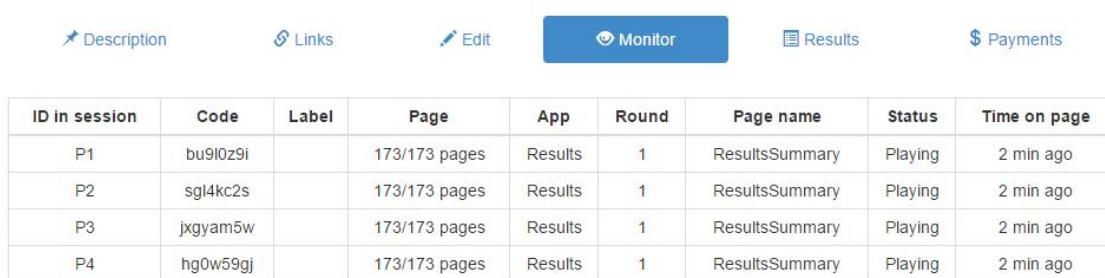


A screenshot of a game monitoring interface. At the top, there are tabs: Description, Links, Edit, Monitor (which is highlighted in blue), Results, and Payments. Below the tabs is a table with the following columns: ID in session, Code, Label, Page, App, Round, Page name, Status, and Time on page. There is one row for player P1, who has completed 173/173 pages in the Results app, Round 1, under the ResultsSummary page, and is currently Playing.

ID in session	Code	Label	Page	App	Round	Page name	Status	Time on page
P1	qvaro7ts		173/173 pages	Results	1	ResultsSummary	Playing	7 min ago

Figure 2.1.1: Single player completing game

Biosecurity Game: session `vy2q5wde`



A screenshot of a game monitoring interface for four players. The tabs at the top are the same as in Figure 2.1.1. The table below shows each player (P1, P2, P3, P4) has completed 173/173 pages in the Results app, Round 1, under the ResultsSummary page, and is currently Playing. All four entries show a time of 2 min ago.

ID in session	Code	Label	Page	App	Round	Page name	Status	Time on page
P1	bu9l0z9i		173/173 pages	Results	1	ResultsSummary	Playing	2 min ago
P2	sgl4kc2s		173/173 pages	Results	1	ResultsSummary	Playing	2 min ago
P3	jxgyam5w		173/173 pages	Results	1	ResultsSummary	Playing	2 min ago
P4	hg0w59gj		173/173 pages	Results	1	ResultsSummary	Playing	2 min ago

Figure 2.1.3: Four players completing game

Biosecurity Game: session h5yy4u1d

Biosecurity								
Session number	Player							
	Id in group	Role	Funds at round end	Protection	Cost	Payoff	Id in subsession	Incursion
3	1		41.25	0.68	3.75	41.25	1	
3	1		41.25	0.68	3.75	41.25	2	
3	1		41.25	0.68	3.75	41.25	3	
3	1		41.25	0.68	3.75	41.25	4	
3	1		41.25	0.68	3.75	41.25	5	
3	1		16.25	0.68	3.75	16.25	6	1

Figure 2.2.1.1: Single player groups formed from eight players (Shown by ID in group being 1 and ID in subsession being different values)

Biosecurity Game: session h5yy4u1d

Description	Links	Edit	Monitor	Results	Payments
ID in session	Code	Label	Page	App	Round
P1	Iut76tbw		173/173 pages	Results	1
P2	o1f3xfcg		173/173 pages	Results	1
P3	t87jas11		173/173 pages	Results	1
P4	7pw1wrmv		173/173 pages	Results	1
P5	0poiy5ep		173/173 pages	Results	1
P6	gtc0i3c8		173/173 pages	Results	1
P7	2wehap9q		173/173 pages	Results	1
P8	75luu85x		173/173 pages	Results	1

Figure 2.2.1.2: Single player groups completed game (Shown by 173/173 Pages and Results)

Biosecurity Game: session gsiywnq3

Biosecurity								
Group off	Id in subsession	Subsession Round number	Id in group	Role	Lottery			
					question 1	question 2	question 3	question 4
3	3	1	1					
3	1	1	2					
10	2	1	1					
10	2	1	2					
3	3	1	1					
10	3	1	2					

Biosecurity Game: session gsiywnq3

Biosecurity								
Biosecurity Game: session gsiywnq3								
Biosecurity Game: session gsiywnq3								
ID in session	Code	Label	Page	App	Round	Page name	Status	Time on page
P1	smf1loqj		173/173 pages	Results	1	ResultsSummary	Playing	4 min ago
P2	yelt8lw		173/173 pages	Results	1	ResultsSummary	Playing	4 min ago
P3	egjdre7r		173/173 pages	Results	1	ResultsSummary	Playing	3 min ago
P4	zyn09j9		173/173 pages	Results	1	ResultsSummary	Playing	3 min ago
P5	tu68c24u		173/173 pages	Results	1	ResultsSummary	Playing	2 min ago
P6	tfsmme5a		173/173 pages	Results	1	ResultsSummary	Playing	2 min ago
P7	37y8cje		173/173 pages	Results	1	ResultsSummary	Playing	2 min ago
P8	jn65jba		173/173 pages	Results	1	ResultsSummary	Playing	2 min ago

Figure 2.2.2.1: Two player groups formed from eight players (Shown by ID in group alternating between 1 and 2 and ID in subsession being in pairs of same value).

Figure 2.2.2.2: Two player groups completed game (Shown by 173/173 Pages and Results)

Biosecurity Game: session 169yqou9

Group		Subsession		Role	Lottery question 1	Lottery question 2	Lottery question 3	Lottery question 4	Lottery question
Id in session	Round number	Id in group							
1	1	1							
1	1	2							
3	1	3							
2	1	1							
2	1	2							
2	1	3							

ID in session	Code	Label	Page	App	Round	Page name	Status	Time on page
P1	xdu6us2		173/173 pages	Results	1	ResultsSummary	Playing	1 min ago
P2	8ay3sub		173/173 pages	Results	1	ResultsSummary	Playing	1 min ago
P3	jny80eqq		173/173 pages	Results	1	ResultsSummary	Playing	1 min ago
P4	cjw6alc		173/173 pages	Results	1	ResultsSummary	Playing	1 min ago
P5	47s972ca		173/173 pages	Results	1	ResultsSummary	Playing	1 min ago
P6	7okka4bn		173/173 pages	Results	1	ResultsSummary	Playing	1 min ago
P7	zrnw3qwh		173/173 pages	Results	1	ResultsSummary	Playing	1 min ago
P8	1kd4cvjl		173/173 pages	Results	1	ResultsSummary	Playing	1 min ago

Figure 2.2.3.1: 2x Three player groups and 1x Two player formed from eight players (Shown by ID in group being between 1 and 3 and ID in subsession being in pairs of same values)

Biosecurity Game: session 169yqou9

Group		Subsession		Role	Lottery question 1	Lottery question 2	Lottery question 3	Lottery question 4	Lottery question
Id in session	Round number	Id in group							
1	1	1							
1	1	2							
3	1	3							
2	1	1							
2	1	2							
2	1	3							

Figure 2.2.3.2: Three player groups and 1 One player group completed game (Shown by 173/173 Pages and Results)

Biosecurity Game: session afec1z8c

Group		Subsession		Role	Lottery question 1	Lottery question 2	Lottery question 3	Lottery question 4	Lottery question
Payoff	Id in session	Round number	Id in group						
40.00	1	1	4						
40.00	1	1	5						
40.00	1	1	6						
40.00	2	1	2						
40.00	2	1	1						

ID in session	Code	Label	Page	App	Round	Page name	Status	Time on page
P1	xue3p4		173/173 pages	Results	1	ResultsSummary	Playing	1 min ago
P2	x1p0pero		173/173 pages	Results	1	ResultsSummary	Playing	1 min ago
P3	pat42e9		173/173 pages	Results	1	ResultsSummary	Playing	1 min ago
P4	b1vcpkt0		173/173 pages	Results	1	ResultsSummary	Playing	1 min ago
P5	k830593		173/173 pages	Results	1	ResultsSummary	Playing	1 min ago
P6	h5h0l0sq		173/173 pages	Results	1	ResultsSummary	Playing	1 min ago
P7	ard1tpv		173/173 pages	Results	1	ResultsSummary	Playing	2 min ago
P8	8178y8he		173/173 pages	Results	1	ResultsSummary	Playing	3 min ago

Figure 2.2.4.1: A Six player group and a Two player formed from eight players (Shown by ID in group being between going up to 6 then 1 and 2 again and ID in subsession being 1 until the last two values which are 2)

Biosecurity Game: session afec1z8c

Group		Subsession		Role	Lottery question 1	Lottery question 2	Lottery question 3	Lottery question 4	Lottery question
Payoff	Id in session	Round number	Id in group						
40.00	1	1	4						
40.00	1	1	5						
40.00	1	1	6						
40.00	2	1	2						
40.00	2	1	1						

Figure 2.2.4.2: A six player group and a two player group completed game (Shown by 173/173 Pages and Results)

Your current funds are: \$5.123456789
How much would you like to spend to protect your crops?
Please drag the slider to adjust the amount of money you wish to spend:

Cost: \$5.12
Protection provided: 99%
Next

Figure 2.3.1.1: Start funds and Max protection are represented properly

Hello Epimetheus
The amount of protection you provided this round was \$5.12
The cost for produce is \$5.12
The revenue for each round if an incursion didn't occur is \$5.12

There was no incursion
Your total revenue is **\$5.12**
Your total cost is \$10.24

Figure 2.3.1.2: Max protection, Upkeep and Revenue are represented properly

Your current funds are: \$-5.0
How much would you like to spend to protect your crops?
Please drag the slider to adjust the amount of money you wish to spend:



Cost:
\$100
Protection provided:
-1.0000000000000016e+42%

Next

Figure 2.3.2.1: Start funds represented properly and Max protection not represented correctly, however it is noted that having negative values for the variables will not accurately assess the experiment and will end with unusable data.

Hello Triton
The amount of protection you provided this round was \$100.00
The cost for produce is \$-5.00
The revenue for each round if an incursion didn't occur is \$-5.00

There was no incursion
Your total revenue is \$-5.00
Your total cost is \$95.00

Figure 2.3.2.2: Upkeep and Revenue are represented properly but not max protection.

Must be a multiple of 1

Create

Configure session

Custom

dynamic_finances	5.5
max_protection	5.5
player_communication	Please enter a number.
players_per_group	2
revenue	5.5
set_leader	
starting_funds	5.5
upkeep	5.5
use_browser_bots	
General	
participation_fee	0.0
real_world_currency_per_point	1.0

Figure 2.3.3: Unable to enter non-numeric value

Biosecurity Game: session e18yee8f							
	Description	Links	Edit	Monitor	Results	Payments	
ID in session	P1	8su40tg	173/172 pages	Results	ResultsSummary	Playing	2 min ago
Code	P2	mifge6sq	173/173 pages	Results	ResultsSummary	Playing	2 min ago

Advance slowest user(s)

Figure 2.3.4: A game runs to completion with default values

revenue	upkeep	protection
25.057731	4.593562	14.968538
22.763267	5.540176	16.330747
19.971156	3.913073	12.90437
23.517438	5.303361	14.780365
25.977217	3.109123	17.324518
30.238535	4.41587	13.013854
25.738666	5.219278	15.362406
24.817652	4.349736	16.671669
23.885143	5.794706	16.137687
25.205525	3.714179	8.787475
24.276262	5.701291	14.041593
26.611866	4.878948	14.197653

Figure 2.4.1: Dynamic Value.csv

Results for 1 of 15	
	Hello Jupiter
	The amount of protection you provided this round was \$7.48
	The cost for produce is \$4.59
	The revenue for each round if an incursion didn't occur is \$25.06
	There was no incursion
	Your total revenue is \$25.06
	Your total cost is \$2.48
	Each Player's Protection: Thebe -- Protection: \$7.48 Jupiter -- Protection: \$7.48 Your current funds: 7.99 Dollars.
	Next

Figure 2.4.2: Round 1 of a dynamic game. Note that upkeep (cost to produce) and revenue have been updated.

Your current funds are: \$7.99
How much would you like to spend to protect your crops?
Please drag the slider to adjust the amount of money you wish to spend:

Cost: \$16.33
Protection provided: 99%
[Next](#)

Biosecurity								
ID in session	Id in group	Role	Player			Payoff	Id in subsession	Incursion
			Funds at rounds end	Protection	Cost			
P1	1	Leader	20.00	0.00	0.00	20.00	1	1
P2	2		5.00	0.99	15.00	5.00	1	1
P3	3		20.00	0.00	0.00	20.00	1	1

Figure 2.4.3: Round 2 of a dynamic game. Note that max_protection has been updated.

Biosecurity Test: session b6zo70sv										
Description			Links		Edit		Monitor			
			Results		\$ Payments					
Biosecurity										
ID in session	Id in group	Role	Funds at rounds end	Protection	Cost	Payoff	Id in subsession	Incursion		
P1	1	Leader	20.00	0.00	0.00	20.00	1	1		
P2	2		5.00	0.99	15.00	5.00	1	1		
P3	3		20.00	0.00	0.00	20.00	1	1		

Figure 2.5.1: A single player is assigned the leader

Tiesto has spent 7.50 on protection this round.
Your current funds are: 25.0
How much would you like to spend?
Please drag the slider to adjust the amount of money you wish to spend:

Cost: \$7.5
Protection provided: 90%
[Next](#)

Figure 2.5.2: A non-leader player is shown the leader's contribution before they choose their own contribution

Test 3 – Chat Box Test

Aim –

Demonstrate that the chat box is operational

Functionality to test-

- The chat box only displays when the session has the chat enabled
- The chat box only displays on the rounds specified
- When a player sends a message, all players receive the message
- Players cannot send profanity
- All messages are logged to a file that the admin can view

Process

- Create a new Biosecurity session with communication enabled and one with it disabled

- Have players run through the pages until the Biosecurity introduction is displayed and have them click next once it is verified they are at the correct page
- Verify that for those with communication disabled they see the first round of the Biosecurity game while those with it enabled see the Chat round instead
- Have one player of the chat enabled round send a message and verify that all other players in the session can see the message. Do this for each player
- Have one player type a word that could be regarded as profanity and verify that the word is not displayed to any other player and the sending player receives a warning.
- Advanced the chat enabled game through the rest of the rounds and verify that the two other chat rounds occur after round five and round ten
- Once the game is completed, from the admin page, verify that the target file for the chat has the inputs from the chat rounds

Use Case	Test Case	Expected Result	Actual Result
Chatbox - displays	'player_communication' is checked in session configuration when a session is created	Chat box appears before protection round 1, after protection round 5 and after protection round 10	
	'Player_communication' is unchecked in session configuration	Chat box does not appear in any rounds	No chat boxes appeared in any rounds
Chatbox - Messages	Players sends a message	All players receive message with alias of sender	When a message was sent from any participant, all other received the message (Figures 3.1.1 and 3.1.2)
Chat box – Chat filter	Player attempts to send a message containing profanity	Profanity warning appears for offending	When a player attempted to send profanity, a warning appeared and no one received the message (Figures 3.2)

Chat log	Players send messages to one another	All messages sent during a session are logged to a file that can be viewed later by the admin of the game	At C:\otree\Biosecurity\Chats within the server, all chat sessions are logged with session ID, time and date of log (Figures 3.3)
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Evidence of testing -

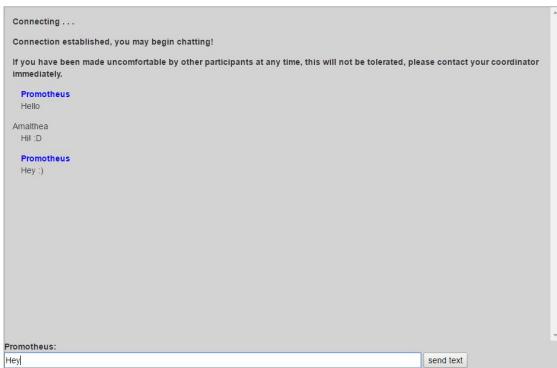


Figure 3.1.1: Sending message from Prometheus (A participant's alias)

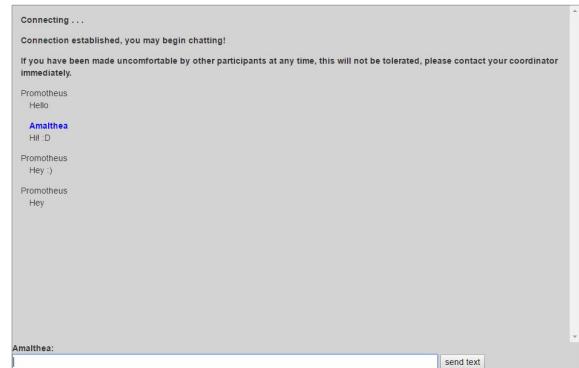


Figure 3.1.2: Message received from Prometheus



Figure 3.2: Profanity filter

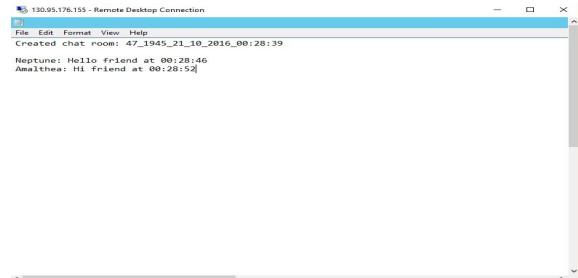


Figure 3.3: Chat log from communication enabled game

Test 3 – Compatibility Test

Aim – Test that the game is compatible with multiple devices and across multiple browsers

Functionality to test

- The chat box displays on the browser
- The wait page displays on the browser
- The results page displays on the browser
- The wait page displays on the browser
- The round page displays on the browser

Process

- Start a new biosecurity test session.
- Open the game as a player on the browser that is to be tested
- Go to the chat box page, check if it displays properly, and if the chat is functional
- Go to the wait page, check if it displays properly
- Go to the results page, check if it displays properly
- Go to the round page, check if it displays properly, and if slider is functional

Test Metric –

Use Case	Test Case	Expected Result	Test Result and Grade
Android Chrome	Chat Box	Chat box displays and chat is functional	Pass: chat displays as expected and chat messages are sent. (Figure 4.11)
	Wait Page	Wait Page displays	Pass:wait page displays as expected. (Figure 4.12)
	Results Page	Results Page displays	Pass: results page displays as expected. (Figure 4.13)
	Round Page	Round Page displays	Pass: round page displays as expected and slider functions but only updates when you let go of it. (Figure 4.14)
Internet Explorer 11	Chat Box	Chat box displays and chat is functional	Pass: chat displays as expected and chat messages are sent. (Figure 4.21)
	Wait Page	Wait Page displays	Pass:wait page displays as expected. (Figure 4.22)
	Results Page	Results Page displays	Pass: results page displays as expected.(Figure 4.23)
	Round Page	Round Page displays	Pass: round page displays as expected and slider functions and updates as you drag it.(Figure 4.24)
Firefox	Chat Box	Chat box displays and chat is functional	Pass: chat displays as expected and chat messages are sent (Figure 4.31)
	Wait Page	Wait Page displays	Pass:wait page displays as expected (Figure 4.32)
	Results Page	Results Page displays	Pass: results page displays as expected (Figure 4.33)
	Round Page	Round Page displays	Pass: round page displays as expected and slider functions but only updates when you let go of it (Figure 4.34)

Chrome	Chat Box	Chat box displays and chat is functional	Pass: chat displays as expected and chat messages are sent (Figure 4.41)
	Wait Page	Wait Page displays	Pass: wait page displays as expected (Figure 4.42)
	Results Page	Results Page displays	Pass: results page displays as expected (Figure 4.43)
	Round Page	Round Page displays	Pass: round page displays as expected and slider functions but only updates when you let go of it (Figure 4.44)

Evidence of testing -

Android Chrome:

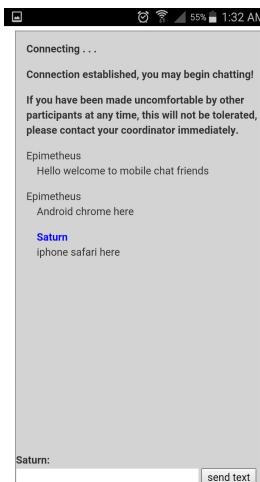


Figure 4.11: Chat on
Android Chrome

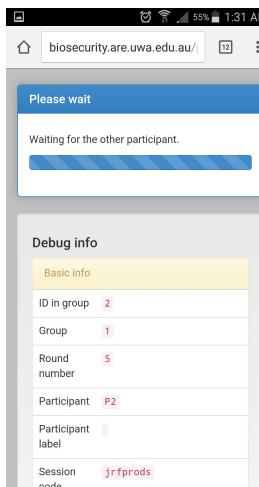


Figure 4.12: Wait
Page on Android
Chrome



Figure 4.13: Results
Page on Android
Chrome

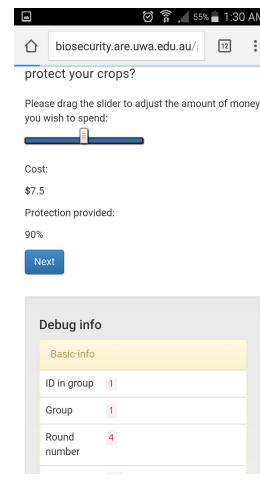


Figure 4.14: Round
Page on Android
Chrome

Internet Explorer 11:

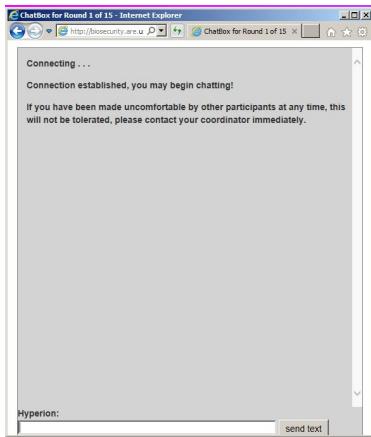


Figure 4.21: Chat on Internet Explorer 11

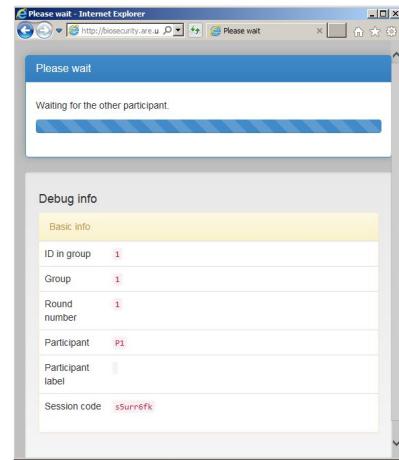


Figure 4.22: Wait Page on Internet Explorer 11

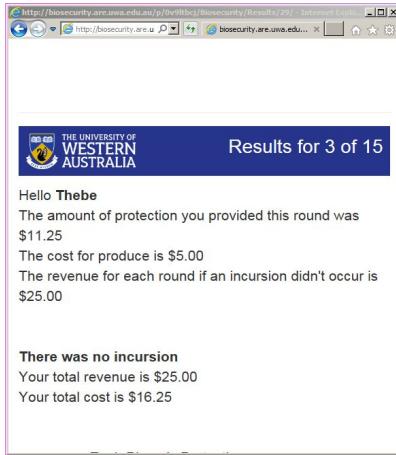


Figure 4.23: Results on Internet Explorer 11

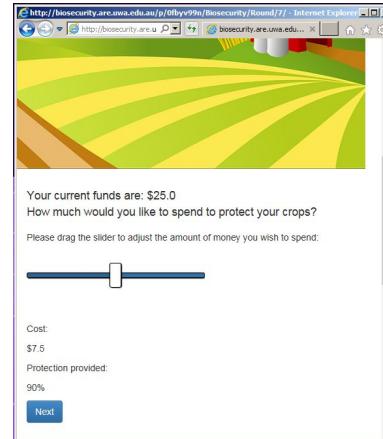


Figure 4.24: Round Page on Internet Explorer 11

Firefox:

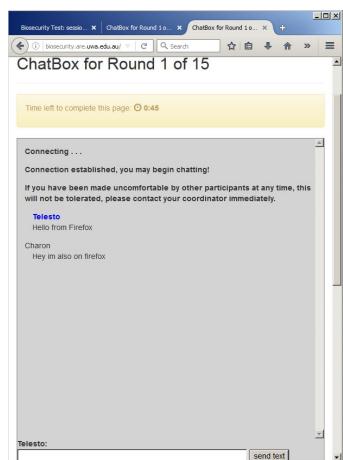


Figure 4.31: Chat on Firefox

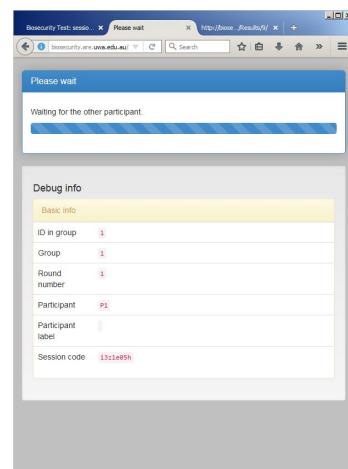


Figure 4.32: Wait Page on Firefox

Figure 4.33: Results Page on Firefox

Figure 4.34: Round Page on Firefox

Chrome

Figure 4.41: Chat on Chrome

Figure 4.42: Wait Page on Chrome

Figure 4.43: Results Page on Chrome

Figure 4.44: Round Page on Chrome

Test 4 – Lottery Test

Aim –

Test that the lottery is functional in terms of readability of the UI, coherency of instructions, payoffs and random selection of a game for payment

Functionality to test –

- An introduction should be displayed to each player describing the lottery game
- Instructions should be displayed to each participant that are coherent and make sense
- A quiz about the rules of the game should be displayed that each participant must pass before moving to the game itself
- The lottery game's user interface should be consistent across all players
- Making a selection of B should cause all other choices below to be auto filled as B
- Each player receives their expected payoff at the end of the game
- The selection of the winning game and ball number is consistent across all players and is random

Process

- Start a new session for up to four players (the session can just be the isolated lottery game)
- Have each player go to their separate links and begin the game
- Verify that each players' first screen is the introduction to the game, once verified move to the next page
- Verify that this next page is the lottery instructions and is consistent for all players

Testing the quiz –

- Complete all choices for the quiz making sure that at least two of the choices are incorrect then press next
- Verify that the instead of the next page being displayed, the page notifies the user of each question that has been answered incorrectly
- Make the correct choice for one of the incorrect questions and try next again
- Verify that again the next page has not been displayed
- Fix all remaining mistakes and then press next
- Verify that the next page is displayed, this should be the lottery round

Testing the lottery –

- For each round of the lottery begin by selecting just A for the first game in each and then press next
- Verify that you are not allowed to continue until all games have a selection
- After selecting at least one A, select B (this can also be done by creating a bot that only makes a selection of B for the first selection of each round. If the feature is working, the bot should be able to complete the lottery)
- Verify that all games below the first B are auto filled as B. Do this for each round.
- Verify that the next page is the questionnaire for each player and once verified have each player complete it (can be random) and press next when done
- The next page will be the results summary. Verify that for each player the paying round, paying line and ball number is the same along with each player receiving a payoff of some value (this does not need to be consistent) however the payoffs should be manually compared with what would be expected from the csv file
- To test that each player's payoff will be the same if they make the same selection for the payoff game, create and run at least two bots that will always make the same selections and verify through the results tab that their payoff is the same.

Test Metric –

Use Case	Test Case	Expected Result	Test Result and Grade
Introduction	Run game through	Introduction page appears as first page to the participant	Pass: First page after clicking link is the Introduction page (Figures 5.1)
	Automated bots running yield(views.I ntroduction)	Bots pass through the game without failing at the introduction	Pass: Bots complete lottery (Figures 5.7)
Instructions	Run game through	After pressing next on the Introduction page, the next page is the Instructions for the lottery	Pass: Page after Introduction was the Instructions (Figures 5.2)
	Automated bots running yield(views.I nstructions)	Bots pass through the game without failing at the introduction	Pass: Bots complete lottery (Figures 5.7)
Quiz - UI	By Inspection	Displays correctly for each player	Pass: As expected (Figures 5.3)
	Automated testing via browser bots	Bots pass through the game without failing at the quiz	Pass: Bots complete lottery (Figures 5.7)
Quiz - Understanding	Player makes an incorrect selection	Player cannot advance to the next page until all errors are corrected	Pass: Unable to go to next round if at least one question is incorrectly answered (Figures 5.4)
	Automated bots running ‘submission mustfail()’ for the quiz questions and select incorrect questions	Bots pass through the game without failing due to a submission error	Pass: Bots pass the lottery without a submission error (Figures 5.7)
Lottery – UI	By Inspection	Displays correctly for each player	Pass: Lottery UI displayed as expected for all three rounds (Figures 5.5)

	Automated testing via browser bots	Bots pass through the game without failing at any of the lottery rounds	Bots complete lottery (Figures 5.7)
Lottery – B autofill	Manual test	When the first B selection is made, all selections below that round are auto-filled as B	When the first B is selected all choices below auto-fill as B
Lottery – Payoff Consistency	Automated Play through of bots that make the same choices then manually inspect results	If two players made the same choice for the paying game, their payoff is the same	All bots received the same payoff when they made the same choice for the winning game (Figures 5.6)
Lottery – Payoff Correct	Automated play by bots then manual inspection of results	The payoff for each player is 68 if B is selected and 40 is A is selected if the paying round is round 1, the paying line is line 1	Both selections for A and B were as expected from the CSV file (Figures 5.8 and 5.9)

Evidence of testing -

The screenshot shows a dark-themed user interface for an experiment. At the top, there's a logo for 'THE UNIVERSITY OF WESTERN AUSTRALIA'. Below it, the word 'Introduction' is centered. Underneath, there's a section titled 'Overview' which contains a paragraph of text about the experiment's purpose and instructions. Another section titled 'Today's Session' provides details about the session structure. A third section, 'Communication Stage', gives instructions for communication with co-players. At the bottom right, there's a blue 'Next' button.

Figure 5.1: Introduction page UI correct

The screenshot shows a light-themed user interface for lottery instructions. At the top, there's a logo for 'THE UNIVERSITY OF WESTERN AUSTRALIA' and the title 'Lottery Instructions'. Below it, there are two main sections: 'Instructions' and 'How the game works'. The 'Instructions' section contains text about the virtual lottery game and the choice between Prize A and Prize B. The 'How the game works' section explains the process of randomly picking numbered balls from a bingo cage. At the bottom right, there's a blue 'Next' button.

Figure 5.2: Lottery Instructions page UI correct

Figure 5.3: Lottery understanding quiz page UI correct

Game Number	Balls: 1-3	Balls: 4-10	Prize: A	Prize: B	Balls: 1	Balls: 2-10
1	\$40	\$10	<input type="radio"/>	<input checked="" type="radio"/>	\$68	\$5
2	\$40	\$10	<input checked="" type="radio"/>	<input type="radio"/>	\$75	\$5
3	\$40	\$10	<input type="radio"/>	<input checked="" type="radio"/>	\$83	\$5
4	\$40	\$10	<input checked="" type="radio"/>	<input type="radio"/>	\$93	\$5
5	\$40	\$10	<input type="radio"/>	<input checked="" type="radio"/>	\$106	\$5
6	\$40	\$10	<input checked="" type="radio"/>	<input type="radio"/>	\$125	\$5
7	\$40	\$10	<input type="radio"/>	<input checked="" type="radio"/>	\$150	\$5
8	\$40	\$10	<input checked="" type="radio"/>	<input type="radio"/>	\$185	\$5
9	\$40	\$10	<input type="radio"/>	<input checked="" type="radio"/>	\$220	\$5
10	\$40	\$10	<input checked="" type="radio"/>	<input type="radio"/>	\$300	\$5
11	\$40	\$10	<input type="radio"/>	<input checked="" type="radio"/>	\$400	\$5
12	\$40	\$10	<input checked="" type="radio"/>	<input type="radio"/>	\$600	\$5
13	\$40	\$10	<input type="radio"/>	<input checked="" type="radio"/>	\$1000	\$5
14	\$40	\$10	<input checked="" type="radio"/>	<input type="radio"/>	\$1700	\$5

Figure 5.5: First round of the lottery game UI correct

Figure 5.4: Notification when attempted to press next when a wrong choice was submitted

						Group	Subsession	
Submitted answer 10	Submitted answer 11	Submitted answer 12	Submitted answer 13	Submitted answer 14	Payoff	Id in subsession	Round number	Id in group
B	B	B	B	B	93.00	1	1	1
B	B	B	B	B	93.00	1	1	2
B	B	B	B	B	93.00	1	1	3
B	B	B	B	B	93.00	1	1	4

Figure 5.6: All players received the same payoff for the lottery when they made the same selection for the winning round

Figure 5.7: Result of running ‘otree test lottery_test’ from the command line which runs the lottery specific test bots over an isolated version of the lottery game (the command runs all cases described in the test code). If any of the tests using the Automated Testing method had failed, an error pointing to the first failure would have appeared instead.

```

1 | lottery_round,game_number,a_best,a_best_ball_range,a_worst,a_worst_ball_range,b_best,b_best_ball_range,b_worst,b_worst_ball_range
2 | 1,1,40,1-3,10,4-10,68,1,5,2-10
3 | 1,2,40,,10,,75,,5,
4 | 1,3,40,,10,,83,,5,
5 | 1,4,40,,10,,93,,4,
6 | 1,5,40,,10,,106,,5,
```

Figure 5.8: Section of the lottery_data.csv file containing the payoff and ball ranges for each game and round. Line 2 shows that for game 1 of round 1, the payoff if choice A is made and the selected ball is between 1 and 3 is 40, while it is 10 if the ball is not in this range. For B, if the ball is 1, the payoff is 68 and if it is between 2 and 10, the payoff is 5.

	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
10		B	B	B	B	A	B	B	A	A	A	B	A	B	A	0	
11	A	A	A	A	B	B	B	A	A	B	A	A	B	B	A	0	
12	A	A	B	A	B	B	A	B								0	
13	B	A	B	A	B	A	B									0	
14	It's set the s	33% A	A	A	A	A	B	A	B	B	B	B	B	B	B	40	
15	It's set the s	33% A	A	A	A	A	B	A	B	B	B	B	B	B	B	40	
16	A	A	A	A	A	A	B	A	B	B	B	B	B	B	B	0	
17	A	A	A	A	A	A	B	A	B	B	B	B	B	B	B	0	
18	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	0	
19	A	A	A	A	A	A	B	A								0	
20	It's set the s	33% B	B	B	B	B	B	B	B	B	B	B	B	B	B	68	
21	It's set the s	33% B	B	B	B	B	B	B	B	B	B	B	B	B	B	68	
22	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	0	
23	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	0	
24	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	0	
25	B	B	B	B	B	B	B	B								0	
26	It's set the s	33% A	A	A	A	A	A	A	A	A	A	A	A	A	A	40	
27	It's set the s	33% A	A	A	A	A	A	A	A	A	A	A	A	A	A	40	
28	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	0	
29	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	0	
30	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	0	
31	A	A	A	A	A	A	A	A								0	

Figure 5.9: Exported file from running of above test. Column V Rows 14 and 15 shows two separate bots making choice A for the winning game (round 1, line 1, ball 1) and both receiving the same payoff (68) (column AJ, rows 14 and 15). Similarly rows 20 and 21 show two separate bots both selecting B and gaining the same payoff (68).

Test 5 – Output Data Test

Aim –

Demonstrate that the game runs correctly and that the data collected from the game is from all players

Functionality to test –

- All data from every user input to the game is stored
- The data is exported in a useable format
- The data is presented in such a way that it is useable

Process

- As this test does not require exact values to be returned, bots are the logical choice to run the game as they are more time efficient
- Run a session of the complete game (all components including questionnaire and lottery) with browser bots enabled
- Run all bots to completion
- From the admin page at the top left go to data, then under the ‘Per-app’ heading click either excel or csv for the Biosecurity game App. This will download the game data
- Inspect the data to see if all relevant inputs from the user are present and are presented in a useable way

Use Case	Test Case	Expected Result	Actual Result
----------	-----------	-----------------	---------------

Exported data	Content	All player choices are stored in the exported file	All player inputs are stored for the lottery, biosecurity game and questionnaire
	Usability	The exported data is in a file type such as a csv or excel spreadsheet	All data is available as a an excel or csv file (Figures 6.1)
	Format	The format of the data exported is in such a way that it can be easily used by the client (columns names for each input and row names for each participant)	All columns have names for the data they contain with each player in a distinct row for each round in which a choice was made
	Robustness	Data can be recovered from incomplete sessions	When a session was ended prematurely and the session data was exported, all choices up to the event were stored (Figures 6.2)
	Usefulness	All data relevant to the study is present including, all player choices, whether the game allowed communication, the session id, round number	All relevant data is displayed (Figures 6.3.1 and 6.3.2)

Evidence of testing -

Per-app

These files contain a row for each player in the given app. If there are multiple rounds, there will be multiple rows for the same participant. This format is useful if you are mainly interested in one app, or if you want to correlate data between rounds of the same app.

App	Data	Documentation
Results	Excel CSV	CSV
Biosecurity	Excel CSV	CSV
Lottery	Excel CSV	CSV

Figure 6.1: Available files to the admin

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	participant, player_id, in_player, prot, player_cost																
2	1 qz2g42cr	0	30	173 Biosecurity	1	Results	10.21.183.2016-10-15 ¹	0	1						1	0.86	4.3
3	2 wk8d8gr2	0	30	173 Biosecurity	1	Results	10.21.183.2016-10-15 ¹	0	1						2	0.98	8.62
4	3 z52ypn	0	30	173 Biosecurity	1	Results	10.21.183.2016-10-15 ¹	0	1						1	0.93	5.79
5	4 tzxbetbc	0	30	173 Biosecurity	1	Results	10.21.183.2016-10-15 ¹	0	1						2	0.84	3.98
6	1 qz2g42cr	0	30	173 Biosecurity	1	Results	10.21.183.2016-10-15 ¹	0	1						1		
7	2 wk8d8gr2	0	30	173 Biosecurity	1	Results	10.21.183.2016-10-15 ¹	0	1						2		
8	3 z52ypn	0	30	173 Biosecurity	1	Results	10.21.183.2016-10-15 ¹	0	1						1		
9	4 tzxbetbc	0	30	173 Biosecurity	1	Results	10.21.183.2016-10-15 ¹	0	1						2		
10	1 qz2g42cr	0	30	173 Biosecurity	1	Results	10.21.183.2016-10-15 ¹	0	1						1		
11	2 wk8d8gr2	0	30	173 Biosecurity	1	Results	10.21.183.2016-10-15 ¹	0	1						2		
12	3 z52ypn	0	30	173 Biosecurity	1	Results	10.21.183.2016-10-15 ¹	0	1						1		
13	4 tzxbetbc	0	30	173 Biosecurity	1	Results	10.21.183.2016-10-15 ¹	0	1						2		

Figure 6.2: Excel spreadsheet exported from the server when a session was ended after the first protection round

Biosecurity Game: session 12n6twxw

Biosecurity [Round 15]								
Player				Group				
Funds at rounds end	Protection	Cost	Payoff	Id in subsession	Incursion	Incursion count	Communication	Total protection
100.00	0.00	0.00	-5.00	1	1	9	1	0.99
-125.00	0.99	15.00	-20.00	1	1	9	1	0.99

Figure 6.3.1: Results page of a bot run game

Biosecurity									
100	0	0	-5	1	1	9	1	0.99	
-125	0.99	15	-20	1	1	9	1	0.99	

Figure 6.3.2: Results from Figure 6.3.1 in the All-Apps Excel file

Test 6 – Multiple Sessions test

Aim –

To determine if the system can handle multiple group sessions concurrently and if the admin can monitor multiple at once

Functionality to test –

- Multiple sessions can be run to completion concurrently hosted on a single machine
- Performance is not significantly impacted as new sessions are begun
- Admins can monitor every session that is running

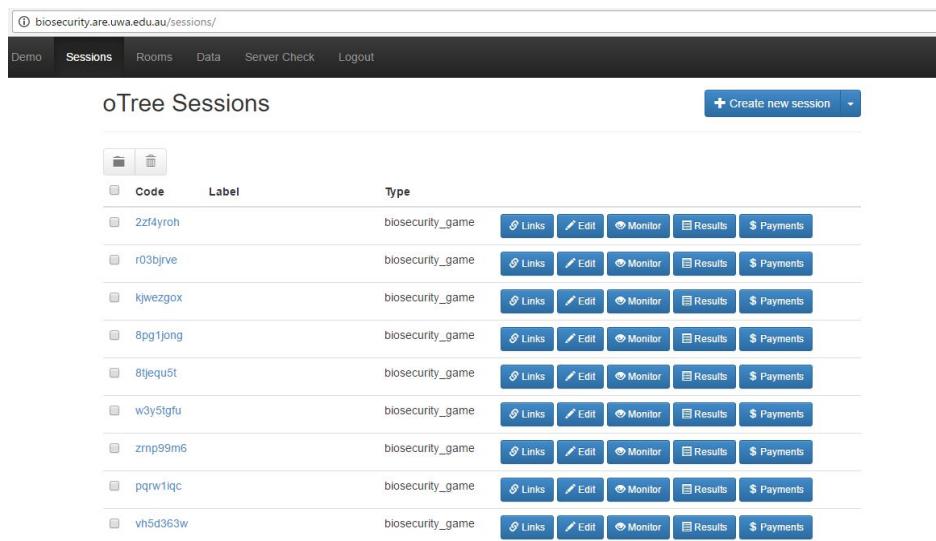
Process

- From the admin page, go to the top right and select sessions
- On the next page click the “Create new session” button in the top right
- Under Session config select the Biosecurity game and choose the number of participants for each game
- Do this until the number of sessions that will likely occur concurrently have been created
- Run each session using automated bots
- From the admin page, select sessions again and from the list of running sessions select ‘monitor’ to view the bots progress and verify that the bots are advancing
- Confirm that all sessions run to completion

Use Case	Test Case	Expected Result	Actual Result
Multiple sessions	Max number of expected sessions (9)	All sessions can run to completion	All sessions run to completion (Figures 7.1)

	Performance	The performance of each session is not noticeably affected from a single session being run alone	No noticeable difference were observed in page response times. Performance was however limited when bots were used for more than eight participants
	Monitoring	All sessions can be monitored and switched between	All sessions could be monitored separately when desired (Figures 7.2)

Evidence of testing -

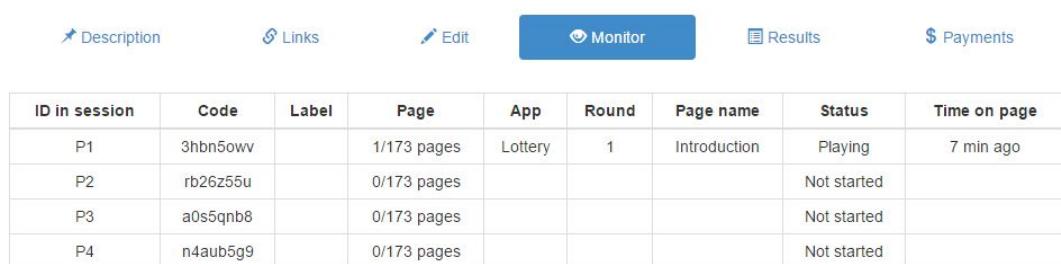


The screenshot shows the 'Sessions' tab of the oTree web application. At the top, there's a navigation bar with links for 'Demo', 'Sessions' (which is the active tab), 'Rooms', 'Data', 'Server Check', and 'Logout'. Below the navigation is a button labeled '+ Create new session'. The main area is titled 'oTree Sessions' and displays a table of sessions. The columns in the table are 'Code', 'Label', and 'Type'. Each session row contains a small thumbnail icon, the session code ('2zf4yroh', 'r03bjrve', etc.), the label ('biosecurity_game'), and the type ('biosecurity_game'). To the right of each session are five buttons: 'Links' (blue), 'Edit' (blue), 'Monitor' (blue), 'Results' (blue), and 'Payments' (blue). The table lists ten sessions.

	Code	Label	Type	Links	Edit	Monitor	Results	Payments
1	2zf4yroh	biosecurity_game	biosecurity_game	Links	Edit	Monitor	Results	Payments
2	r03bjrve	biosecurity_game	biosecurity_game	Links	Edit	Monitor	Results	Payments
3	kjwezgox	biosecurity_game	biosecurity_game	Links	Edit	Monitor	Results	Payments
4	8pgt1jong	biosecurity_game	biosecurity_game	Links	Edit	Monitor	Results	Payments
5	8tjequ5t	biosecurity_game	biosecurity_game	Links	Edit	Monitor	Results	Payments
6	w3y5tgfu	biosecurity_game	biosecurity_game	Links	Edit	Monitor	Results	Payments
7	zmp99m6	biosecurity_game	biosecurity_game	Links	Edit	Monitor	Results	Payments
8	pqrw1lqc	biosecurity_game	biosecurity_game	Links	Edit	Monitor	Results	Payments
9	vh5d363w	biosecurity_game	biosecurity_game	Links	Edit	Monitor	Results	Payments

Figure 7.1: Session tab showing multiple games running concurrently

Biosecurity Game: session 2zf4yroh



This screenshot shows the details for session '2zf4yroh'. At the top, there are tabs for 'Description', 'Links', 'Edit', 'Monitor' (which is highlighted in blue), 'Results', and 'Payments'. Below the tabs is a table with columns: 'ID in session', 'Code', 'Label', 'Page', 'App', 'Round', 'Page name', 'Status', and 'Time on page'. The table contains four rows (P1, P2, P3, P4) with the following data:

ID in session	Code	Label	Page	App	Round	Page name	Status	Time on page
P1	3hbn50wv		1/173 pages	Lottery	1	Introduction	Playing	7 min ago
P2	rb26z55u		0/173 pages				Not started	
P3	a0s5qnb8		0/173 pages				Not started	
P4	n4aub5g9		0/173 pages				Not started	

Biosecurity Game: session r03bjrve

The screenshot shows a table with the following columns: ID in session, Code, Label, Page, App, Round, Page name, Status, and Time on page. The rows represent four participants (P1-P4) who have not yet started the game.

ID in session	Code	Label	Page	App	Round	Page name	Status	Time on page
P1	cgp1susr		0/173 pages				Not started	
P2	qiq3djtw		0/173 pages				Not started	
P3	iufwq3sj		0/173 pages				Not started	
P4	0cfom78x		0/173 pages				Not started	

Biosecurity Game: session kjwezgox

The screenshot shows a table with the following columns: ID in session, Code, Label, Page, App, Round, Page name, Status, and Time on page. The rows represent four participants (P1-P4) who are currently playing the game.

ID in session	Code	Label	Page	App	Round	Page name	Status	Time on page
P1	8zqx4roe		173/173 pages	Results	1	ResultsSummary	Playing	27 min ago
P2	8er4c8q9		173/173 pages	Results	1	ResultsSummary	Playing	27 min ago
P3	93t4l180		173/173 pages	Results	1	ResultsSummary	Playing	27 min ago
P4	xku0fm0u		173/173 pages	Results	1	ResultsSummary	Playing	27 min ago

Figure 7.2: Result of selecting monitor tab from first three sessions in list

Screenshot of all sessions on the monitoring screen showing their different progress levels

Test 7 – Administration page

Aim –

To verify that the admin page provides adequate control to the clients over currently running sessions

Functionality –

- The admin can advance the slowest player of a group if needed
- The admin can monitor results of each session in real time

Process –

- Begin a new session using human participants
- Have each player play the game
- Have the admin click monitor on the session options and verify that the current state of the session is what is being seen
- Have the admin attempt to advance the slowest participant and have the slowest participant confirm that they have been advanced

Use Case	Test Case	Expected Result	Actual Result
Advancing slowest player	Use ‘Advance slowest player’	Slowest player(s) in the group are automatically advanced to the next page with no errors	Pass. When the slowest player of a session was advanced by the admin, a random protection value was

	function in monitor tab		assigned and the game continued as normal (Figures 8.1)
Monitoring	Have a player advance to the next page in the game while on the monitor tab of the session	A clear indication is made that a player has advanced to the next page	Pass. Green highlight around updated information occurs when player advances to the next page (Figures 8.2)

Evidence of testing -

Biosecurity Game: session 48inc4gh



ID in session	Code	Label	Page	App	Round	Page name	Status	Time on page
P1	q6ke17k5		30/173 pages	Biosecurity	1	Results	Playing	<1 min ago
P2	i49e4w7z		30/173 pages	Biosecurity	1	Results	Playing	<1 min ago
P3	ysc9wz2j		30/173 pages	Biosecurity	1	Results	Playing	<1 min ago
P4	fdwbarx2		30/173 pages	Biosecurity	1	Results	Playing	<1 min ago

Figure 8.1: View from the ‘monitor’ tab of a session when players P2, P3 and P4 have been advanced

Biosecurity Game: session 48inc4gh



ID in session	Code	Label	Page	App	Round	Page name	Status	Time on page
P1	q6ke17k5		38/173 pages	Biosecurity	2	Round	Playing	1 min ago
P2	i49e4w7z		38/173 pages	Biosecurity	2	Round	Playing	1 min ago
P3	ysc9wz2j		38/173 pages	Biosecurity	2	Round	Playing	1 min ago
P4	fdwbarx2		39/173 pages	Biosecurity	2	ResultsWaitPage	Waiting for P1, P2, P3	<1 min ago

Figure 8.2: View of ‘monitor’ tab when a single player has recently advanced to the next page