<Project1>: Shopping Cart Checkout Simulation Black Box Test Plan

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Date: March 3, 2017

Introduction:

The purpose of this proposed black box test plan is to ensure that proper functionality is achieved, constantly, through various repeatable testing conditions. Since the simulation uses a randomly generated value as part of its calculation for a cart's arrival and checkout time, the <u>SimulationViewer.java</u> class cannot be tested for consistency. However, The <u>SimpleSimulationRunner.java</u> class can be substituted in place for the main program, and used to test for required functionally, with constant and repeatable testing parameters. Although the main program lacks consistency when reporting average wait and checkout times, which it's designed to do, it is still tested to ensure proper functionality of the graphical user interface.

Basic instructions for running both the <u>SimpleSimulationRunner.java</u> and <u>SimulationViewer.java</u> files are provided inside the **Description** column below. Additionally, basic understanding of the Eclipse IDE is assumed.

File Names and Directory Locations:

File: SImpleSimulationRunner.java Package Explorer: Project1 > src > ui > SimpleSimulationRunner.java File: SimulationViewer.java Package Explorer: Project1 > src > ui > SimulationViewer.java

How to Run:

- 1. Expand the Package Explorer to display the above source directory.
- 2. Right click on the specified test file.
- 3. Click Run as
- 4. Select Java Application

Test ID	Description	Expected Results	Actual Results
Test 1: Test Invalid Register Input	Preconditions: None	The console displays:	The console displays:
	Run Simulation	Number of shopping carts:	Number of shopping carts:
	Viewer.java	20	20
		Number of checkout	Number of checkout
	Right click on	registers: 2	registers: 2
	SimpleSimulationRunner.j	Exception in thread	Exception in thread
	ava in Eclipse by	"main"	"main"
	expanding any necessary folders:	java.lang.lllegalArgumentE	java.lang.lllegalArgumentE
	Project1/src/ui/SimpleSim	xception: Number of	xception: Number of
	ulationRunner.java	registers must be	registers must be
	,	between 3 and 12	between 3 and 12
	Click: Run as	inclusive.	inclusive.
	Select: Java Application	at	at
		edu.ncsu.csc216.checkout	edu.ncsu.csc216.checkout
	The console, located on	_simulator.simulation.Sim	_simulator.simulation.Sim
	the bottom part of Eclipse	ulator. <init>(Simulator.jav</init>	ulator. <init>(Simulator.jav</init>
	(depending on your	<u>a:44</u>)	<u>a:44</u>)
	settings) should ask for	at	at
	input: Number of carts:	edu.ncsu.csc216.checkout	edu.ncsu.csc216.checkout
	Type: 20	_simulator.ui.SimpleSimul	_simulator.ui.SimpleSimul
Тур	Type: 20	atorRunner.main(<u>SimpleSi</u>	atorRunner.main(<u>SimpleSi</u>
	Hit the Enter/Return key.	mulatorRunner.java:24)	mulatorRunner.java:24)

	1		
	Console should now say: Number of checkout registers:		
	Type: 2		
	Hit the Enter/Return key.		
	Check results.		
Test 2:	Preconditions: none	The console displays:	The console displays:
Test Invalid Inputs	Treesmantiens. Hence	The console displays.	The console displays.
·	Run the SimpleSimulationRunner.j	Exception in thread "main"	Exception in thread "main"
	ava (refer back to Test 1	java.lang.IllegalArgumentE	java.lang.IllegalArgumentE
	for help).	xception: There must be	xception: There must be
	, ,	at least one shopping cart	at least one shopping cart
	Enter -2 as the input for	in the simulation.	in the simulation.
	"Number of carts:"	at	at
		edu.ncsu.csc216.checkout	edu.ncsu.csc216.checkout
	Hit Enter/Return	_simulator.simulation.Sim	_simulator.simulation.Sim
	Enter 9 as the input for	ulator. <init>(<u>Simulator.jav</u></init>	ulator. <init>(Simulator.jav</init>
	"Number of checkout	<u>a:45</u>)	<u>a:45</u>)
	registers:"	at	at
		edu.ncsu.csc216.checkout	edu.ncsu.csc216.checkout
	Hit Enter/Return	_simulator.ui.SimpleSimul atorRunner.main(SimpleSi	_simulator.ui.SimpleSimul
		mulatorRunner.java:24)	atorRunner.main(<u>SimpleSi</u> mulatorRunner.java:24)
T 2	Check Results		
Test 3: Test Valid Parameters	Preconditions: None	The simulation ran without any errors and	The simulation ran without any errors and
lest valid raialileters	Run	the console displays:	the console displays:
	SimpleSiulationViewer.jav	the console displays.	the console displays.
	a (refer back to Test 1 for	Number of shopping carts:	Number of shopping carts:
	help).	20	20
		Number of checkout	Number of checkout
	Enter 20 as the input for	registers: 6	registers: 6
	"Number of carts:"	Average Wait Time:	Average Wait Time:
	Hit Enter/Return	124.000 seconds	124.000 seconds
	The Enter, Netarn	Average Process Time: 167.400 seconds.	Average Process Time: 167.400 seconds.
	Enter 6 as the input for "Number of checkout registers:"	167.400 Seconds.	167.400 Seconds.
	Hit Enter/Return		
	Check Results		
	Repeat Test 3 to ensure you get the same results as your first run.	Same results were	Same results were
	Check Results	achieved.	achieved.
L			

Test 4:	Preconditions: None	Title bar says "Shopping	Title bar says "Shopping
Starting The Application	i reconditions. None	Cart Checkout Simulation"	Cart Checkout Simulation"
Starting The Application	Run Simulation	with two buttons	with two buttons
	Viewer.java	underneath:	underneath:
		Start	Start
	Right click on	Stop	Stop
	SimulationViewer.java in		
	Eclipse by expanding any necessary folders in the	The simulation is blank with a legend underneath	The simulation is blank with a legend underneath
	Project Explorer:	displaying:	displaying:
	Project1/src/ui/Simulation	anspiraying.	alsplaying.
	Viewer.java	Green - Express Cart	Green - Express Cart
		Blue - Regular Cart	Blue - Regular Cart
	Click: Run as	Red - Special Handling	Red - Special Handling
	Select: Java Application	Cart	Cart
	Check Results	The number of shopping carts is prefilled to a value of 100, the number of checkout registers is preselected to a value of 3, both average checkout time and average wait time show no values next to them, the progress bar displays no progress and is completely grey.	The number of shopping carts is prefilled to a value of 100, the number of checkout registers is preselected to a value of 3, both average checkout time and average wait time show no values next to them, the progress bar displays no progress and is completely grey.
Test 5: Testing GUI with Invalid Input	Preconditions: Test 4 passed. Enter -1 inside the text field beside the label	A pop-up dialog box displays the message: "There must be at least one shopping cart in the simulation."	A pop-up dialog box displays the message: "There must be at least one shopping cart in the simulation."
	"Number of Shopping		_, , , , , , ,
	Carts:"	The animation did not run, the labels and input	The animation did not run, the labels and input
	Leave all other values to	values did not change, the	values did not change, the
	their pre-filled/pre-	progress bar did not	progress bar did not
	selected values.	change, and no values are	change, and no values are
		listed beside the labels for	listed beside the labels for
	Click start.	both "Average Wait Time:" and "Average Checkout	both "Average Wait Time:" and "Average Checkout
	Check Results:	Time:"	Time:"
	Click OK		
Test 6:	Preconditions: Test 4	The simulation ran	The simulation ran
Testing GUI with Valid Input	passed.	without any errors.	without any errors.
	Enter 100 inside the text	The animation displayed 9	The animation displayed 9
	field beside the label	columns with colored	columns with colored
	"Number of Shopping	squares of varying	squares of varying
	Carts:"	amounts and colors (Green, Blue, Red), the	amounts and colors (Green, Blue, Red), the
	Select 9 as the "Number	progress bar moved along	progress bar moved along
	of Checkout Registers."	with the animation.	with the animation.

Leave all other values to their default and click "Start"	There are numbers listed beside both "Average Wait Time" and "Average Checkout Time" labels.	There are numbers listed beside both "Average Wait Time" and "Average Checkout Time" labels.
Check Results		

Document Revision History

Date	Author	Change Description
3/3/2017	Steven Mayo	• Created and filled out BBTP for P1P2. I was unaware that this was required for P1P1. I thought the separated sections on the website
		correlated to different parts of the project.