

MIDWESTERN STATE UNIVERSITY

DEPARTMENT OF COMPUTER SCIENCE

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TEST MANUAL

Project: *Educational Discrete Math Interactive e-Learning Tutorial*

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Table of Contents

1. Introduction.....	1
1.1. Document Purpose.....	1
1.2. Objective.....	1
1.3. Test team members.....	1
2. Testing strategy/techniques.....	1
3. Test Schedule.....	2
4. Test Deliverables and artifacts.....	2
5. Testing Constraints.....	2

1. Introduction

1.1 Document purpose

This test plan describes the following:

Test strategy/ techniques: provides an outline of how to develop assessment of quality of the product. The purpose of test strategy is to understand the major task and challenges of the test project.

Test schedule: describes the overall schedule for testing tasks and required resource allocation for the testing.

Test deliverables and artifacts: are documents and results produced in the test work flow.

Testing constraints: are limitations or restrictions faced during the test phase.

1.2 Objective

★ The objective of this document is to describe the scope, approach, resources, and schedule of intended testing activities. It also identifies test items, the features to be tested, the testing tasks, who will do each task, and any risks requiring possible planning. The test plan will also set standards for the testing process in order to improve software quality.

1.3 Test team members

The responsibility of the testers will be to plan test activities, execute the test cases, find and report defects to the implementation team, follow-up on corrections and analyze and document the final results.

The testing team consists of Praveen, Devendar, Sachin, Shreya, and Rutu.

2. Testing strategy/techniques

The testing strategy will utilize predominately black box and Graphical User Interface testing methods. Also, the equivalence partitioning testing techniques are to be used. Graphical user interface testing will be used to test the entire interface for the project.

3. Test Schedule

The test plan schedule will follow the increments of the project process. The first increment of testing will test the graphical user interface and will test the navigation design of the project. The second increment of testing will test the tutorial section, this tutorial section consist of discrete math tutorials on different topics, and their explanations. The third and forth increments will test the math quiz and logic game sections. After each test increment a review will be held with the implementation team to review the result of testing.

4. Test deliverables and artifacts

The deliverable and artifacts are as follows

- Test plan document
- Test cases
- Testing Results
- Final Report

5. Testing constraints

The major testing constraint is lack of test experience and Graphical User Interface (GUI) testing. It is impossible to test each and every part of GUI. The project comprises many such components which limit the testing activities. In addition, the testing schedule is delegated by the implementation schedule and a limited overall project development time frame. Though there are such constraints, the testing team will make use of these constraints to assure improved quality of the project and the parameters of the application deployment project.

TEST CASES

Screen Name	Test Action	Expected Result
RETEST		
Main Page		
	1. page load	Main page must be loaded
	2. SVG images	SVG images should be loaded
	3. click on View Math Quizzes link	Math Quiz page should be loaded
	4. click on View Discrete Math Tutorial link	Discrete Math Tutorial page should be loaded
	5. click on Play math games link	Math Game page should be loaded
	6. Check page background	page background should be proper
	7. Check text contents	Gramatically correct text content should be available
Discrete Math Tutorial		
	1. Page load	page should be loaded
	2. SVG images	SVG images should be loaded
	3. Click on Scientific Math Calculator link	Scientific Math Calculator window should be opened
	4. Click on Take Discrete Math Quizzes link	Take Math Quizzes window should be opened
	5. Click on Math Entertainment link	Math Entertainment window should be opened
	6. Click on Sets(Union, Intersection, Difference) Link	Sets page should be loaded
	7. Click on Truth Table Link	Truth Table page should be loaded
	8. Click on Euclidian Algorithm (GCD) Link	GCD page should be loaded
	7. Click on Pascal Triangle link	Pascal Triangle page should be opened
	8. Click in Permutations and Combinatorics Link	Permutations and Combinatorics page should be loaded
	9. Click on view more topics link	More Topics page should be loaded
	10. Click on MAIN PAGE button	Main page should be loaded
	13. Click on math topic button	Discrete Math Tutorial page should be loaded
	14. Click on QUIZ YOURSELF button	Math Quiz page should be loaded
	15. Click on ENTERTAINMENT button	MathGame page should be loaded
	16. Click on GO BACK button	Main page should be loaded
More Topics		
	1. Page load	Topics page should be loaded
	2. SVG images	SVG images should be loaded
	3. Click on Scientific Math Calculator link	Scientific Math Calculator window should be opened
	4. Click on Take Discrete Math Quizzes link	Take Math Quizzes window should be opened
	5. Click on Math Entertainment link	Math Entertainment window should be opened
	6. Click on Fibonacci Sequence Numbers Link	Fibonacci Sequence Numbers page should be loaded
	7. Click on B+ tree... Link	B+ Tree page should be opened

TEST CASES

Screen Name	Test Action	Expected Result
	8. Click in Magic Square Link	Magic Square page should be loaded
	9. Click on MAIN PAGE button	Main page should be loaded
	10. Click on math topic button	Discrete Math Tutorial page should be loaded
	11. Click on QUIZ YOURSELF button	Math Quiz page should be loaded
	12. Click on ENTERTAINMENT button	MathGame page should be loaded
	13. Click on GO BACK button	Main page should be loaded
	14. Click on view previous topics link	Discrete Math Tutorial page should be loaded
Sets	1. Page load	page should be loaded with proper definition
	2. SVG images	SVG images should be loaded
	3. Topic 1 button	??
	4. Click on Sets(Union, Intersection, Difference) button	applet should be loaded
	5. Click on Explanation Tutorial Link	New explanation window should be opened
	5. Click on QUIZ YOURSELF button	Math Quiz page should be loaded
	6. Click on Main Page button	Main page should be loaded
	7. Click on 1,2,...,8 topic links	Respective topic pages should be loaded
	1. Page load	page should be loaded with proper definition
	2. SVG images	SVG images should be loaded
	3. Topic 2 button	??
	4. Click on Truth table for Boolean Expressions button	applet should be loaded
	5. Click on Explanation Tutorial Link	New explanation window should be opened
	5. Click on QUIZ YOURSELF button	Math Quiz page should be loaded
	6. Click on Main Page button	Main page should be loaded
	7. Click on 1,2,...,8 topic links	Respective topic pages should be loaded
	1. Page load	page should be loaded with proper definition
	2. SVG images	SVG images should be loaded
	3. Topic 3 button	??
GCD	4. Click on Euclidian Algorithm for finding GCD button	applet should be loaded
	5. Click on Explanation Tutorial Link	New explanation window should be opened
	5. Click on QUIZ YOURSELF button	Math Quiz page should be loaded
	6. Click on Main Page button	Main page should be loaded

TEST CASES

Screen Name	Test Action	Expected Result
	7. Click on 1,2,....,8 topic links	Respective topic pages should be loaded
Pascal Triangle	1. Page load	page should be loaded with proper definition
	2. SVG images	SVG images should be loaded
	3. Topic 4 button	??
	4. Click on Pascal Triangle button	applet should be loaded
	5. Click on Explanation Tutorial Link	New explanation window should be opened
	5. Click on QUIZ YOURSELF button	Math Quiz page should be loaded
	6. Click on Main Page button	Main page should be loaded
	7. Click on 1,2,....,8 topic links	Respective topic pages should be loaded
Permutations & Combinatorics	1. Page load	page should be loaded with proper definition
	2. SVG images	SVG images should be loaded
	3. Topic 5 button	??
	4. Click on Pascal Triangle button	applet should be loaded
	5. Click on Explanation Tutorial Link	New explanation window should be opened
	5. Click on QUIZ YOURSELF button	Math Quiz page should be loaded
	6. Click on Main Page button	Main page should be loaded
	7. Click on 1,2,....,8 topic links	Respective topic pages should be loaded
Fibonacci Sequence Numbers	1. Page load	page should be loaded with proper definition
	2. SVG images	SVG images should be loaded
	3. Topic 6 button	??
	4. Click on Fibonacci Sequence Numbers button	applet should be loaded
	5. Click on Explanation Tutorial Link	New explanation window should be opened
	5. Click on QUIZ YOURSELF button	Math Quiz page should be loaded
	6. Click on Main Page button	Main page should be loaded
	7. Click on 1,2,....,8 topic links	Respective topic pages should be loaded
B+ Tree	1. Page load	page should be loaded with proper definition
	2. SVG images	SVG images should be loaded
	3. Topic 7 button	??
	4. Click on B+ Tree Sorting Data... button	applet should be loaded

TEST CASES

Screen Name	Test Action	Expected Result
	5. Click on Explanation Tutorial Link	New explanation window should be opened
	5.Click on QUIZ YOURSELF button	Math Quiz page should be loaded
	6. Click on Main Page button	Main page should be loaded
	7. Click on 1,2,....,8 topic links	Respective topic pages should be loaded
Magic Square	1. Page load	page should be loaded with proper definition
	2.SVG images	SVG images should be loaded
	3. Topic 8 button	??
	4.Click on Magic Square button	applet should be loaded
	5. Click on Explanation Tutorial Link	New explanation window should be opened
	5.Click on QUIZ YOURSELF button	Math Quiz page should be loaded
	6. Click on Main Page button	Main page should be loaded
	7. Click on 1,2,....,8 topic links	Respective topic pages should be loaded
Math Quiz	1. Page load	Math Quiz page should be loaded
	2. SVG images	SVG images should be loaded
	3. Quiz levels with drop down menu	Quiz page should be loaded in different levels
	4.Click on MAIN PAGE button	Main page should be loaded
	15.Click on ENTERTAINMENT button	MathGame page should be loaded
	16.Click on GO BACK button	Main page should be loaded
	13.Click on math topic button	Discrete Math Tutorial page should be loaded
Quiz Page	1. Page load	Math Quiz page should be loaded
	2. SVG images	SVG images should be loaded
	10.Click on MAIN PAGE button	Main page should be loaded
	4. Click on Math Tutorial button	Math Tutorial page should be loaded
	15.Click on Math Entertainment button	MathGame page should be loaded
	16.Click on GO BACK button	Main page should be loaded
	7. Click on topic 1...7	Respective Quiz page should be loaded
	8. Click on Information to know Link	Tutorial information window should be opened
Scientific Math Calculator	1. page load	calculator should be loaded
	2. SVG images	SVG images should be loaded

TEST CASES

Screen Name	Test Action	Expected Result
	3. Click on button - 1	digit 1 should be displayed in the text box
	4. Click on button -2	digit 2 should be displayed in the text box
	5. click on button -3	digit 3 should be displayed in the text box
	6. click on button -4	digit 4 should be displayed in the text box
	7. click on button -5	digit 5 should be displayed in the text box
	8. click on button -6	digit 6 should be displayed in the text box
	9. click on button -7	digit 7 should be displayed in the text box
	10. click on button -8	digit 8 should be displayed in the text box
	11. click on button -9	digit 9 should be displayed in the text box
	12. click on button -0	digit 0 should be displayed in the text box
	13. click on minus button	should compute subtraction of two numbers
	14. click on multiply button	should compute multiplication of two numbers
	15. click on divide button	should compute division of two numbers
	16. click on add button	should compute addition of two numbers
	17. click on percentage button	should compute the percentage of the entered number
	18. click on 1/x button	should compute the reciprocal of the entered value
	19. click on equal button	should compute the specified operation and display the result in text box
	20. click on square button	should compute the square of the entered number
	21. click on cube button	should compute the cube of the entered number
	22. click on biquadratic button	should compute biquadratic of the entered number
	23. click on root button	should compute the square root of the entered number
	24. click on root3 button	should compute the cube root of the entered number
	25. click on root4 button	should compute the fourth root of the entered number
	26. click on logarithm button	should compute the logarithm of the entered number
	27. click on ln button	should compute the ln of the given button
	28. click on exponent button	should compute 10^x of the entered number (x)
	29. click on e button	should compute e^x of the entered number (x)
	30. click on E button	should compute e of the entered number
	31. click on pi button	should display the pi value
	32. click on factorial button	should compute factorial of the entered number
	33. click on abs button	should display the absolute value of the entered value
	34. click on floor button	should round to the minimum value

TEST CASES

Screen Name	Test Action	Expected Result
	35. click on ceil button	sould round to the maximum value
	36. click on sin button	should display the sin value
	37. click on cos button	should display cos value
	38. click on tan button	should display tan value
	39. click on sin-1 button	should display sin-1 value
	40. click on cos-1 button	should display cos-1 value
	41. click on tan-1 button	should display tan-1 value
	42. click on decimal button	should enter decimal to the current value
	43. click on on sign button	should enter the unary sign to the current value
	44. click on Mplus button	should save the contents in memory
	45. click on MR button	should display the contents from memory
	46. click on clean button	should clear the contents in the text box
	47. click on delete button	should delete one character at a time
	48. click on a button	foreground color and fonts should change
	49. perform wrong action	error message displayed
	50. click on link Main page	should load Main page
	51. click on Math topics	should load Math Topics page
	52. click on Quiz yourself	should load Quiz page
	53. click on Entertainment	should load Entertainment page
	54. click on Go Back	should load the previous page
Math Game	1. page load	Math Game page should be loaded
	2. SVG images	SVG images should be loaded
	3. Check text contents	Correct text content should be available
	4. Click on Hanoi game	Hanoi Game page should be loaded
	5. Click on Slider game	Slider Game page should be loaded
	6. Click on Math puzzle	Math puzzle page should be loaded
	10.Click on MAIN PAGE button	Main page should be loaded
	13.Click on math tutorial button	Discrete Math Tutorial page should be loaded
	14.Click on QUIZ YOURSELF button	Math Quiz page should be loaded
	15.Click on ENTERTAINMENT button	MathGame page should be loaded
	16.Click on GO BACK button	Main page should be loaded

TEST CASES WITH RESULTS

Screen Name	Test Action	Expected Result	Pass/Fail	Comments
RETEST				
Main Page	1. page load	Main page must be loaded	Pass	
	2. SVG images	SVG images should be loaded	Pass	
	3. click on View Math Quizzes link	Math Quiz page should be loaded	Pass	
	4. click on View Discrete Math Tutorial link	Discrete Math Tutorial page should be loaded	pass	
	5. click on Play math games link	Math Game page should be loaded	Pass	
	6. Check page background	page background should be proper	Pass	
	7. Check text contents	Gramatically correct text content should be available	Not Proper	
Discrete Math Tutorial	1. Page load	page should be loaded	Pass	
	2. SVG images	SVG images should be loaded	Pass	
	3. Click on Scientific Math Calculator link	Scientific Math Calculator window should be opened	Pass	May take time for loading
	4. Click on Take Discrete Math Quizzes link	Take Math Quizzes window should be opened	Pass	
	5. Click on Math Entertainment link	Math Entertainment window should be opened	Pass	
	6. Click on Sets(Union, Intersection, Difference) Link	Sets page should be loaded	Pass	
	7. Click on Truth Table Link	Truth Table page should be loaded	Pass	
	8. Click on Euclidian Algorithm (GCD) Link	GCD page should be loaded		
	7. Click on Pascal Triangle link	Pascal Triangle page should be opened	Pass	
	8. Click in Permutations and Combinatorics Link	Permutations and Combinatorics page should be loaded	Pass	
	9. Click on view more topics link	More Topics page should be loaded	Pass	
	10. Click on MAIN PAGE button	Main page should be loaded	Pass	
	13. Click on math topic button	Discrete Math Tutorial page should be loaded	Pass	Need not required
	14. Click on QUIZ YOURSELF button	Math Quiz page should be loaded	Pass	
	15. Click on ENTERTAINMENT button	MathGame page should be loaded	Pass	
	16. Click on GO BACK button	Main page should be loaded	Pass	
More Topics	1. Page load	Topics page should be loaded	Pass	
	2. SVG images	SVG images should be loaded	Pass	
	3. Click on Scientific Math Calculator link	Scientific Math Calculator window should be opened	Pass	May take time for loading
	4. Click on Take Discrete Math Quizzes link	Take Math Quizzes window should be opened	Pass	
	5. Click on Math Entertainment link	Math Entertainment window should be opened	Pass	
	6. Click on Fibonacci Sequence Numbers Link	Fibonacci Sequence Numbers page should be loaded		
	7. Click on B+ tree... Link	B+ Tree page should be opened	Pass	
	8. Click in Magic Square Link	Magic Square page should be loaded	Pass	
	9. Click on MAIN PAGE button	Main page should be loaded	Pass	
	10. Click on math topic button	Discrete Math Tutorial page should be loaded	Pass	
	11. Click on QUIZ YOURSELF button	Math Quiz page should be loaded	Pass	
	12. Click on ENTERTAINMENT button	MathGame page should be loaded	Pass	
	13. Click on GO BACK button	Main page should be loaded	Pass	

TEST CASES WITH RESULTS

	14. Click on view previous topics link	Discrete Math Tutorial page should be loaded	Pass	
Sets	1. Page load	page should be loaded with proper definition	Pass	
	2. SVG images	SVG images should be loaded	Pass	
	3. Topic 1 button	??		Not required as a button
	4. Click on Sets(Union, Intersection, Difference) button	applet should be loaded	Pass	
	5. Click on Explanation Tutorial Link	New explanation window should be opened	Pass	
	5. Click on QUIZ YOURSELF button	Math Quiz page should be loaded	Pass	
	6. Click on Main Page button	Main page should be loaded	Pass	
	7. Click on 1,2,....,8 topic links	Respective topic pages should be loaded	Pass	
Truth Table	1. Page load	page should be loaded with proper definition	Pass	
	2. SVG images	SVG images should be loaded	Pass	
	3. Topic 2 button	??		Not required as a button
	4. Click on Truth table for Boolean Expressions button	applet should be loaded	Pass	
	5. Click on Explanation Tutorial Link	New explanation window should be opened	Pass	
	5. Click on QUIZ YOURSELF button	Math Quiz page should be loaded	Pass	
	6. Click on Main Page button	Main page should be loaded	Pass	
	7. Click on 1,2,....,8 topic links	Respective topic pages should be loaded	Pass	
GCD	1. Page load	page should be loaded with proper definition	Pass	
	2. SVG images	SVG images should be loaded	Pass	
	3. Topic 3 button	??		Not required as a button
	4. Click on Euclidian Algorithm for finding GCD button	applet should be loaded	Pass	Not a Proper title
	5. Click on Explanation Tutorial Link	New explanation window should be opened	Pass	Not a Proper title
	5. Click on QUIZ YOURSELF button	Math Quiz page should be loaded	Pass	
	6. Click on Main Page button	Main page should be loaded	Pass	"Go Back" instead of "Main Page"
	7. Click on 1,2,....,8 topic links	Respective topic pages should be loaded	Pass	
Pascal Triangle	1. Page load	page should be loaded with proper definition	Pass	
	2. SVG images	SVG images should be loaded	Pass	
	3. Topic 4 button	??		Not required as a button
	4. Click on Pascal Triangle button	applet should be loaded	Pass	
	5. Click on Explanation Tutorial Link	New explanation window should be opened	Pass	
	5. Click on QUIZ YOURSELF button	Math Quiz page should be loaded	Pass	
	6. Click on Main Page button	Main page should be loaded	Pass	
	7. Click on 1,2,....,8 topic links	Respective topic pages should be loaded	Pass	
Permutations & Combinatorics	1. Page load	page should be loaded with proper definition	Pass	
	2. SVG images	SVG images should be loaded	Pass	

TEST CASES WITH RESULTS

	3. Topic 5 button	??			Not required as a button
	4. Click on Pascal Triangle button	applet should be loaded		Pass	
	5. Click on Explanation Tutorial Link	New explanation window should be opened		Pass	
	5. Click on QUIZ YOURSELF button	Math Quiz page should be loaded		Pass	
	6. Click on Main Page button	Main page should be loaded		Pass	
	7. Click on 1,2,.....,8 topic links	Respective topic pages should be loaded		Pass	
Fibonacci Sequence Number	1. Page load	page should be loaded with proper definition		Pass	
	2. SVG images	SVG images should be loaded		Pass	
	3. Topic 6 button	??			Not required as a button
	4. Click on Fibonacci Sequence Numbers button	applet should be loaded		Pass	
	5. Click on Explanation Tutorial Link	New explanation window should be opened		Pass	
	5. Click on QUIZ YOURSELF button	Math Quiz page should be loaded		Pass	
	6. Click on Main Page button	Main page should be loaded		Pass	
	7. Click on 1,2,.....,8 topic links	Respective topic pages should be loaded		Pass	
B+ Tree	1. Page load	page should be loaded with proper definition		Pass	
	2. SVG images	SVG images should be loaded		Pass	
	3. Topic 7 button	??			Not required as a button
	4. Click on B+ Tree Sorting Data.... button	applet should be loaded		Pass	
	5. Click on Explanation Tutorial Link	New explanation window should be opened		Pass	
	5. Click on QUIZ YOURSELF button	Math Quiz page should be loaded		Pass	
	6. Click on Main Page button	Main page should be loaded		Pass	
	7. Click on 1,2,.....,8 topic links	Respective topic pages should be loaded		Pass	
Magic Square	1. Page load	page should be loaded with proper definition		Pass	
	2. SVG images	SVG images should be loaded		Pass	
	3. Topic 8 button	??			Not required as a button
	4. Click on Magic Square button	applet should be loaded		Pass	
	5. Click on Explanation Tutorial Link	New explanation window should be opened		Pass	
	5. Click on QUIZ YOURSELF button	Math Quiz page should be loaded		Pass	
	6. Click on Main Page button	Main page should be loaded		Pass	
	7. Click on 1,2,.....,8 topic links	Respective topic pages should be loaded		Pass	
Math Quiz	1. Page load	Math Quiz page should be loaded		Pass	
	2. SVG images	SVG images should be loaded		Pass	
	3. Quiz levels with drop down menu	Quiz page should be loaded in different levels		Pass	
	4. Click on MAIN PAGE button	Main page should be loaded		Pass	
	15. Click on ENTERTAINMENT button	MathGame page should be loaded		Pass	
	16. Click on GO BACK button	Main page should be loaded		Pass	

TEST CASES WITH RESULTS

	13. Click on math topic button	Discrete Math Tutorial page should be loaded	Pass
Quiz Page			
	1. Page load	Math Quiz page should be loaded	Pass
	2. SVG images	SVG images should be loaded	Pass
	10. Click on MAIN PAGE button	Main page should be loaded	Pass
	4. Click on Math Tutorial button	Math Tutorial page should be loaded	Pass
	15. Click on Math Entertainment button	MathGame page should be loaded	Pass
	16. Click on GO BACK button	Main page should be loaded	Pass
	7. Click on topic 1...7	Respective Quiz page should be loaded	Fail
	8. Click on Information to know Link	Tutorial information window should be opened	Pass
Scientific Math Calculator			
	1. page load	calculator should be loaded	Pass
	2. SVG images	SVG images should be loaded	Pass
	3. Click on button - 1	digit 1 should be displayed in the text box	Pass
	4. Click on button - 2	digit 2 should be displayed in the text box	Pass
	5. Click on button - 3	digit 3 should be displayed in the text box	Pass
	6. Click on button - 4	digit 4 should be displayed in the text box	Pass
	7. Click on button - 5	digit 5 should be displayed in the text box	Pass
	8. Click on button - 6	digit 6 should be displayed in the text box	Pass
	9. Click on button - 7	digit 7 should be displayed in the text box	Pass
	10. Click on button - 8	digit 8 should be displayed in the text box	Pass
	11. Click on button - 9	digit 9 should be displayed in the text box	Pass
	12. Click on button - 0	digit 0 should be displayed in the text box	Pass
	13. Click on minus button	should compute subtraction of two numbers	Pass
	14. Click on multiply button	should compute multiplication of two numbers	Pass
	15. Click on divide button	should compute division of two numbers	Pass
	16. Click on add button	should compute addition of two numbers	Pass
	17. Click on percentage button	should compute the percentage of the entered number	Pass
	18. Click on 1/x button	should compute the reciprocal of the entered value	Pass
	19. Click on equal button	should compute the specified operation and display the result in text box	Pass
	20. Click on square button	should compute the square of the entered number	Pass
	21. Click on cube button	should compute the cube of the entered number	Pass
	22. Click on biquadratic button	should compute biquadratic of the entered number	Pass
	23. Click on root button	should compute the square root of the entered number	Pass
	24. Click on root3 button	should compute the cube root of the entered number	Pass
	25. Click on root4 button	should compute the fourth root of the entered number	Pass
	26. Click on logarithm button	should compute the logarithm of the entered number	Pass
	27. Click on ln button	should compute the ln of the given button	Pass
	28. Click on exponent button	should compute 10^x of the entered number (x)	Pass
	29. Click on e button	should compute e^x of the entered number (x)	Pass

TEST CASES WITH RESULTS

	30. click on E button	should compute e of the entered number	Pass	
	31. click on pi button	should display the pi value	Pass	
	32. click on factorial button	should compute factorial of the entered number	Pass	
	33.click on abs button	should display the absolute value of the entered value	Pass	
	34. click on floor button	should round to the minimum value	Pass	
	35. click on ceil button	sould round to the maximum value	Pass	
	36. click on sin button	should display the sin value	Pass	
	37. click on cos button	should display cos value	Pass	
	38. click on tan button	should display tan value	Pass	
	39. click on sin-1 button	should display sin-1 value	Pass	
	40. click on cos-1 button	should display cos-1 value	Pass	
	41. click on tan-1 button	should display tan-1 value	Pass	
	42. click on decimal button	should enter decimal to the current value	Pass	
	43. click on on sign button	should enter the unary sign to the current value	Pass	
	44. click on Mplus button	should save the contents in memory	Pass	
	45. click on MR button	should display the contents from memory	Pass	
	46. click on clean button	should clear the contents in the text box	Pass	
	47. click on delete button	should delete one character at a time	Pass	
	48. click on a button	foreground color and fonts should change	Pass	
	49. perform wrong action	error message displayed	Pass	
	50. click on link Main page	should load Main page	Pass	
	51. click on Math topics	should load Math Topics page	Pass	
	52. click on Quiz yourself	should load Quiz page	Pass	
	53. click on Entertainment	should load Entertainment page	Pass	
	54. click on Go Back	should load the previous page	Pass	
Math Game				
	1. page load	Math Game page should be loaded	Pass	
	2. SVG images	SVG images should be loaded	Pass	
	3. Check text contents	Correct text content should be available		Not Proper
	4. Click on Hanoi game	Hanoi Game page should be loaded	Pass	
	5. Click on Slider game	Slider Game page should be loaded	Pass	
	6. Click on Math puzzle	Math puzzle page should be loaded	Pass	
	10.Click on MAIN PAGE button	Main page should be loaded	Pass	
	13.Click on math tutorial button	Discrete Math Tutorial page should be loaded	Pass	Need not required
	14.Click on QUIZ YOURSELF button	Math Quiz page should be loaded	Pass	
	15.Click on ENTERTAINMENT button	MathGame page should be loaded	Pass	
	16.Click on GO BACK button	Main page should be loaded	Pass	

[illegible]