SOEN 6011 : SOFTWARE ENGINEERING PROCESSES

SUMMER 2021

SUPER CALCULATOR

PROBLEM - 6

Unit Test Cases

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PROBLEM 6 - F2: $tan(x)$

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Unit Test Case for F2 Function

The unit test cases for $tan(x)$ function is done using **JUnit 4** which are traceable to the requirements in problem-2.

Test Case : F2_UnitTestCase_1

Test Case ID	F2_tanZeroCheck_1
Requirement ID	F2-R1
Action	The user clicks the button "Tan" and gives an input 0 (degree) and then click result(=) button.
Input(s)	$tan(0)$
Expected Output	0
Actual Output	0
Test Result	Success

Test Case : F2_UnitTestCase_2

Test Case ID	F2_tanFortyCheck_2
Requirement ID	F2-R2
Action	The user clicks the button "Tan" and gives an input 40 (degree) and then click result(=) button.
Input(s)	$tan(40)$
Expected Output	0.83910101
Actual Output	0.83910101
Test Result	Success

Test Case : F2_UnitTestCase_3

Test Case ID	F2_tanNinetyCheck_3
Requirement ID	F2-R3
Action	The user clicks the button "Tan" and gives an input 90 (degree) and then click result(=) button.
Input(s)	$tan(90)$
Expected Output	undefined
Actual Output	undefined
Test Result	Success

Test Case : F2_UnitTestCase_4

Test Case ID	F2_tanNegativeValueCheck_4
Requirement ID	F2-R4
Action	The user clicks the button "Tan" and gives an input 95 (degree) and then click result(=) button.
Input(s)	$tan(95)$
Expected Output	-11.43005230
Actual Output	-11.43005230
Test Result	Success

Test Case : F2_UnitTestCase_5

Test Case ID	F2_tanNegativeNumberCheck_5
Requirement ID	F2-R5
Action	The user clicks the button "Tan" and gives an input -10 (degree) and then click result(=) button.
Input(s)	$tan(-10)$
Expected Output	-0.17723233
Actual Output	-0.17723233
Test Result	Success

Test Case : F2_UnitTestCase_6

Test Case ID	F2_tanOneHundredAndEightyCheck_6
Requirement ID	F2-R6
Action	The user clicks the button "Tan" and gives an input 180 (degree) and then click result(=) button.
Input(s)	$tan(180)$
Expected Output	0
Actual Output	0
Test Result	Success

Test Case : F2_UnitTestCase_7

Test Case ID	F2_getRadCheck_7
Requirement ID	F2-R7
Action	To make sure that radian function in $tan(x)$ is working properly, I had to do the unit test of Rad(x) and gives an input for $x = 90$ (degree).
Input(s)	$Rad(90)$
Expected Output	1.57079633
Actual Output	1.57079633
Test Result	Success

Test Case : F2_UnitTestCase_8

Test Case ID	F2_getRadOneHundredAndEightyCheck_8
Requirement ID	F2-R8
Action	To make sure that radian function in $tan(x)$ is working properly, I had to do the unit test of Rad(x) and gives an input for $x = 180$ (degree).
Input(s)	$Rad(180)$
Expected Output	3.14159
Actual Output	3.14159
Test Result	Success

Test Case : F2_UnitTestCase_9

Test Case ID	F2_getSinZeroCheck_9
Requirement ID	F2-R9
Action	To make sure that $sin(x)$ function for $tan(x)$ is working properly, I had to do the unit test of $sin(x)$ function and gives an input for 0 (degree).
Input(s)	$sin(0)$
Expected Output	0.0
Actual Output	0.0
Test Result	Success

Test Case : F2_UnitTestCase_10

Test Case ID	F2_getSinFortyCheck_10
Requirement ID	F2-R10
Action	To make sure that $sin(x)$ function for $tan(x)$ is working properly, I had to do the unit test of $sin(x)$ function and gives an input for 40 (degree).
Input(s)	$sin(40)$
Expected Output	0.642788
Actual Output	0.642788
Test Result	Success

Test Case : F2_UnitTestCase_11

Test Case ID	F2_getCosZeroCheck_11
Requirement ID	F2-R11
Action	To make sure that $cos(x)$ function for $tan(x)$ is working properly, I had to do the unit test of $cos(x)$ function and gives an input for 0 (degree).
Input(s)	$cos(0)$
Expected Output	1
Actual Output	1
Test Result	Success

Test Case : F2_UnitTestCase_12

Test Case ID	F2_getCosFortyCheck_12
Requirement ID	F2-R12
Action	To make sure that $cos(x)$ function for $tan(x)$ is working properly, I had to do the unit test of $cos(x)$ function and gives an input for 40 (degree).
Input(s)	$cos(40)$
Expected Output	0.76604305
Actual Output	0.76604305
Test Result	Success

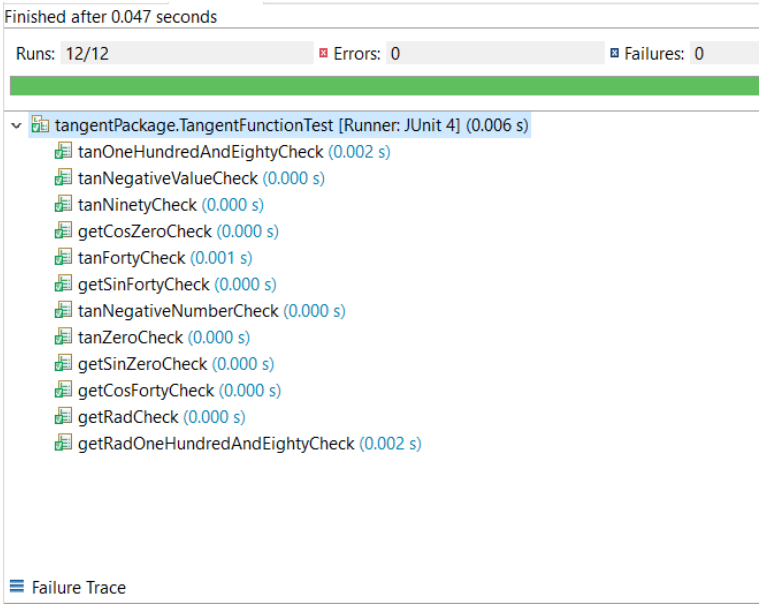

Figure: Unit Testing results for tangent function ($tan(x)$)

PROBLEM 6 - F3: Hyperbolic Sine, $sinh(x)$

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PROBLEM 6 - F5

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Team please add your content here

PROBLEM 6 - F7 : x^y

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Problem 6 - Unit Test Case Description

This section presents the unit test cases implemented using **JUnit4** for Super Calculator (F7-Power Function) which are traceable to requirements.

Test Case : F7_TestCase_1

Test Case ID	F7_TestCase_1
Requirement ID	F7-R1
Action	The user inputs a base input and click power function button followed by giving exponent input and click result(=) button.
Input(s)	base = 0.0, exponent = 0.0
Expected Output	1.0
Actual Output	1.0
Test Result	Success

Test Case : F7_TestCase_2

Test Case ID	F7_TestCase_2
Requirement ID	F7-R2
Action	The user inputs a base input and click power function button followed by giving exponent input and click result(=) button.
Input(s)	base = 0.0, exponent = 3.0
Expected Output	0.0
Actual Output	0.0
Test Result	Success

Test Case : F7_TestCase_3

Test Case ID	F7_TestCase_3
Requirement ID	F7-R3
Action	The user inputs a base input and click power function button followed by giving exponent input and click result(=) button.
Input(s)	base = 7.0, exponent = 0.0
Expected Output	1.0
Actual Output	1.0
Test Result	Success

Test Case : F7_TestCase_4

Test Case ID	F7_TestCase_4
Requirement ID	F7-R4
Action	The user inputs a base input and click power function button followed by giving exponent input and click result(=) button.
Input(s)	base = -4.0, exponent = 0.0
Expected Output	1.0
Actual Output	1.0
Test Result	Success

Test Case : F7_TestCase_5

Test Case ID	F7_TestCase_5
Requirement ID	F7-R5
Action	The user inputs a base input and click power function button followed by giving exponent input and click result(=) button.
Input(s)	base = 7.0, exponent = 1.0
Expected Output	7.0
Actual Output	7.0
Test Result	Success

Test Case : F7_TestCase_6

Test Case ID	F7_TestCase_6
Requirement ID	F7-R6
Action	The user inputs a base input and click power function button followed by giving exponent input and click result(=) button.
Input(s)	base = 5, exponent = 9
Expected Output	1953125.0
Actual Output	1953125.0
Test Result	Success

Test Case : F7_TestCase_7

Test Case ID	F7_TestCase_7
Requirement ID	F7-R6
Action	The user inputs a base input and click power function button followed by giving exponent input and click result(=) button.
Input(s)	base = -3, exponent = 4.4
Expected Output	3.1631
Actual Output	3.1631
Test Result	Success

Test Case : F7_TestCase_8

Test Case ID	F7_TestCase_8
Requirement ID	F7-R6
Action	The user inputs a base input and click power function button followed by giving exponent input and click result(=) button.
Input(s)	base = -9, exponent = 3
Expected Output	-729
Actual Output	-729
Test Result	Success

Test Case Results for F7

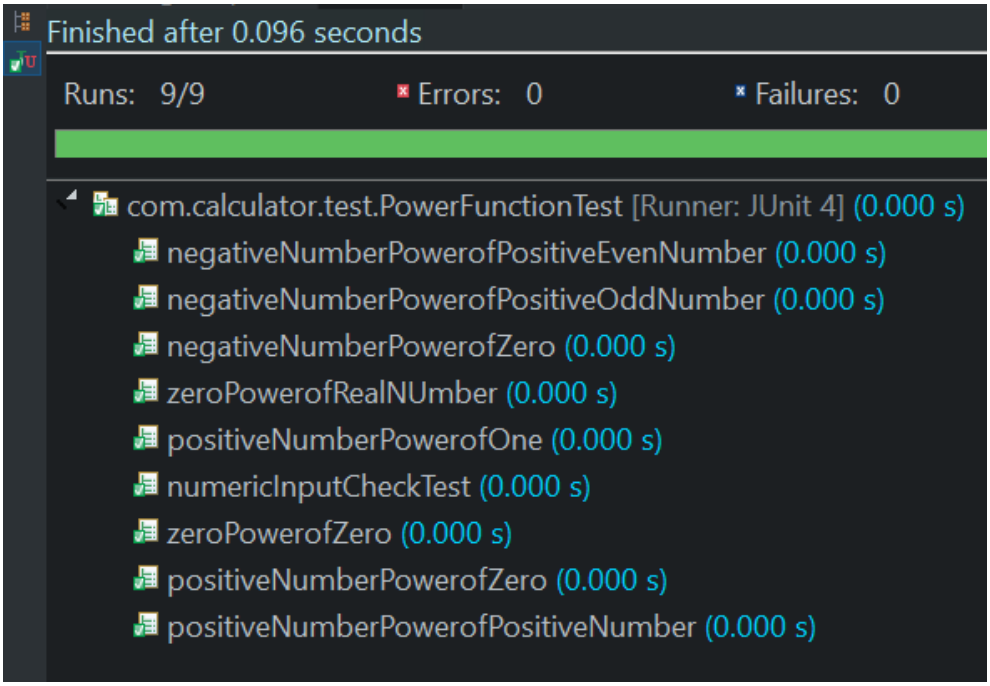

Figure 1: Test case result of function F7 : x^y using Junit4