SOEN 6011 : SOFTWARE ENGINEERING PROCESSES

SUMMER 2021

SUPER CALCULATOR

PROBLEM - 7

Test Case Review

Authors

Rokeya Begum Keya

Kyle Taylor Lange

Sijie Min

Manimaran Palani

https://www.overleaf.com/project/610304de4e6b8d24f7c781b6

Contents

PROBLEM 7 - F2: $tan(x)$

SOEN 6011 - Summer 2021 **Rokeya Begum Keya**
Software Engineering Processes **40183615**
Repository address : https://github.com/Dakatsu/SOEN6011Calculator

Test case Review of F5

In this section I have done testing review for the function (F5)- ($y = ab^x$):
Developed by Sijie Min.

Test Environment

1 Eclipse IDE(2020-2021) for Java

2 JUnit4 framework in Eclipse IDE for testing[1]

Testing steps

1 Compile the F5 function code in Eclipse.

2 Give different inputs according to the requirements(P2)

3 Run the JUnit4 to check the output

4 verified the output

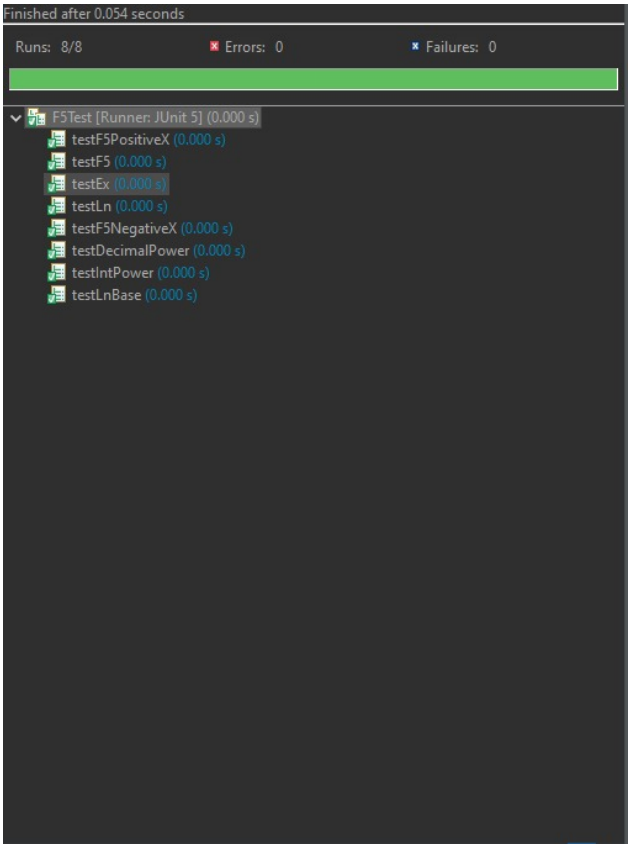

Figure 1: Testing Results Using JUnit-4 for F5 Function

PROBLEM 7 - F3: Hyperbolic Sine, $sinh(x)$

SOEN 6011 - Summer 2021 **Kyle Taylor Lange**
Software Engineering Processes **27627696**
Repository address : https://github.com/Dakatsu/SOEN6011Calculator

Test case Review of F7

The JUnit tests that Manimaran Palani created to test his power function have Javadoc comments that list the exact specification the unit test is built for. All but one of his unit tests are entirely atomic, with only the input validation having multiple assertion statements. I ran the tests in Eclipse, and all of them passed.

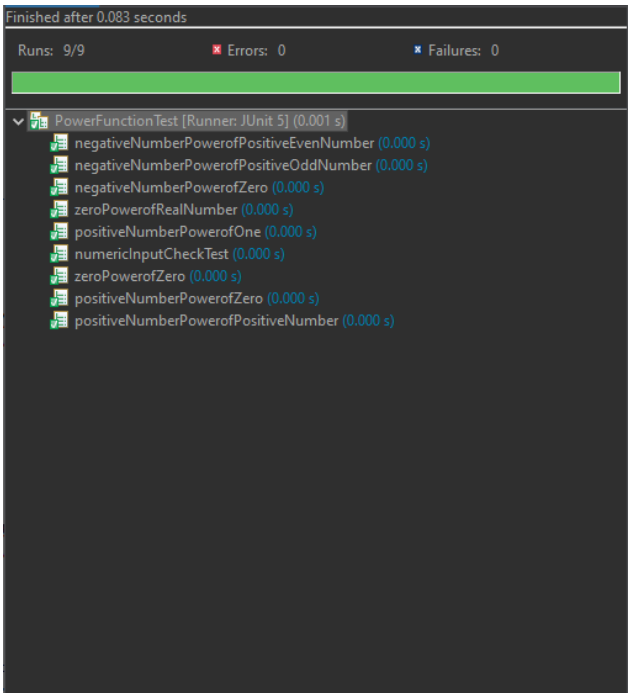

Figure 2: Results of the JUnit tests located in PowerFunctionTest.java

I then proceeded to do a manual test of the function within the calculator application itself, calcu-

lating multiple values in Microsoft Excel before testing the outputs when entered into the calculator. Integer values were all accurate to the calculations, while numbers with decimals varied in accuracy.

Base	Exponent	Expected	Actual	Accuracy
2	0.5	1.414214	1.471007	4.02%
2	1.5	2.828427	2.942015	4.02%
3	0.5	1.732051	1.721007	0.64%
3	1.5	5.196152	5.163022	0.64%
4	1.5	8	7.884029	1.45%
4	2.5	32	31.53612	1.45%
5	3.5	279.5085	274.0018	1.97%
5	4.5	1397.542	1370.009	1.97%
10	4.5	31622.78	31920.15	0.94%

Figure 3: Percentage error values computed against select non-integer inputs.

PROBLEM 7 - F5:$y = ab^x$

SOEN 6011 - Summer 2021 **Sijie Min**
Software Engineering Processes **40152234**
Repository address : https://github.com/Dakatsu/SOEN6011Calculator

Test case Review of F2

The test is completed in eclipse with JUnit4, and the corresponding test java file is run as JUnit Test. For the requirements mentioned in problem2, there are corresponding test cases in the test code. All test cases have passed, and it is possible for requirementF2-R6 It can be seen that the test is successful through the running time of the test.

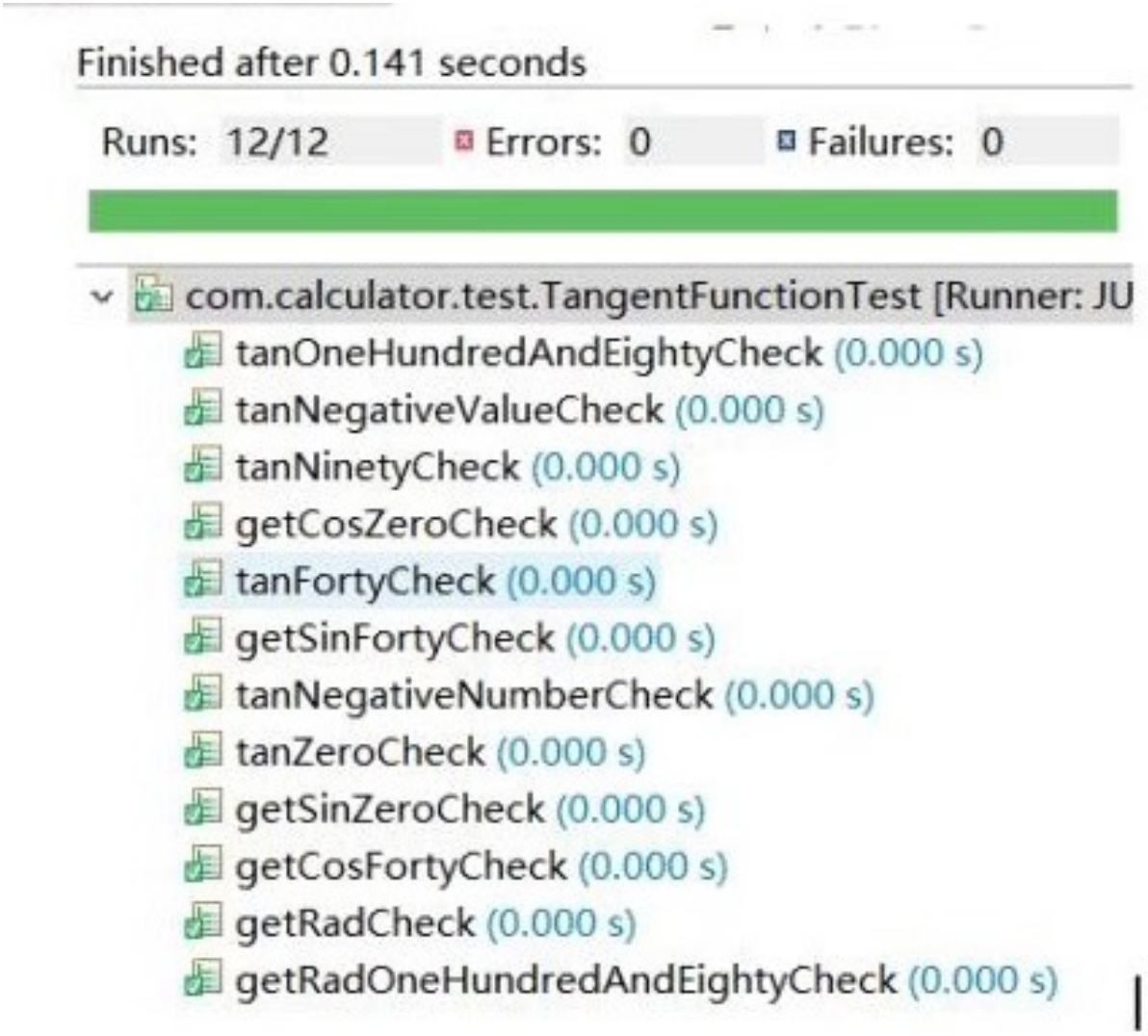

Figure 4: Test case review of F2

PROBLEM 7 - F7 : x^y

SOEN 6011 - Summer 2021 **Manimaran Palani**
Software Engineering Processes **40167543**
Repository address : https://github.com/Dakatsu/SOEN6011Calculator

Test case Review of F3

This sections presents the test case review of a Transcendental function (F3) - $sinh(x)$:
Developed by Kyle Taylor Lange.

Test Suite

Junit test cases[1] are performed with Junit4 framework.

As per Java coding standards, the JUnit test cases are created and maintained in a separate folder structure to perform the testing process with zero impact on code section.

Test Case Results

SinhLibrariesTest.java file was run with Junit4 suite and obtained the below results.

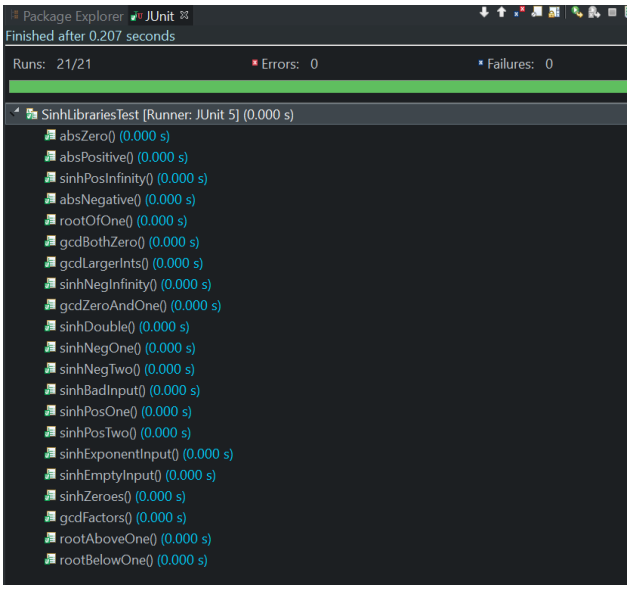

Figure 5: Junit test cases are passed in JUnit[4] in Eclipse IDE

Bibliography

[1] vogella. Unit Testing with JUnit. 2007.
https://www.vogella.com/tutorials/JUnit/article.html