SOEN 6011 : SOFTWARE ENGINEERING PROCESSES

SUMMER 2021

SUPER CALCULATOR

PROBLEM - 2

Requirements

ISO/IEC/IEEE 29148 Standard

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PROBLEM 2 - F2: $tan(x)$

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

Assumption:

The user will give the value of x in $tan(x)$ function in (Degree) real number.The value of $tan(x)$ will be shown upto eight decimals.

Requirements:

[1][2]
The current section describes the requirements to implement the function $tan(x)$.

Requirement Id : F2-R1

Overview	$x = 0°$ in to the $tan(x)$ function
Version	1.0
Description	If the user gives an input $x = 0°$ for $tan(x)$ the function may return 0 as output.
Owner	Rokeya Begum Keya
Priority	High
Type	Functional
Difficulty	Medium
Verification Method	F2_tanZeroCheck_1

Requirement Id : F2-R2

Overview	$x = (Positive\ Degree)$ in to the $tan(x)$ function.
Version	1.0
Description	If the user gives $x = any\ positive\ degree$ for $tan(x)$ the function may return the approximate value of $tan(positive\ degree)$ as output.
Owner	Rokeya Begum Keya
Priority	High
Type	Functional
Difficulty	Medium
Verification Method	F2_tanFortyCheck_2

Requirement Id : F2-R3

Overview	$x = 90°$ in to the $tan(x)$ function
Version	1.0
Description	If the user gives an input $x = 90°$ for $tan(x)$ the function may return "undefined" as output.
Owner	Rokeya Begum Keya
Priority	High
Type	Functional
Difficulty	Medium
Verification Method	F2_tanNinetyCheck_3

Requirement Id : F2-R4

Overview	$x = (Negative\ or\ Positive\ Degree)$ in to the $tan(x)$ function
Description	If the user gives $x = any\ Negative\ or\ Positive\ degree$ for which $tan(x)$ value is Negative the function may return the approximate negative value of $tan(Negative\ or\ Positive\ Degree)$ as output.
Owner	Rokeya Begum Keya
Priority	High
Type	Functional
Difficulty	Medium
Verification Method	F2_tanNegativeValueCheck_4

Requirement Id : F2-R5

Overview	$x = (Negative\ Degree)$ in to the $tan(x)$ function
Version	1.0
Description	If the user gives $x = any\ Negative\ degree$ for $tan(x)$ the function may return the approximate value of $tan(Negative\ degree)$ as output.
Owner	Rokeya Begum Keya
Priority	High
Type	Functional
Difficulty	Medium
Verification Method	F2_tanNegativeNumberCheck_5

Requirement Id : F2-R6

Overview	$x = 180°$ in to the $tan(x)$ function
Version	1.0
Description	If the user gives an input $x = 180°$ for $tan(x)$ the function may return 0 as output.
Owner	Rokeya Begum Keya
Priority	High
Type	Functional
Difficulty	Medium
Verification Method	F2_tanOneHundredAndEightyCheck_6

Requirement Id : F2-R7

Overview	$x = 90°$ in to the $Rad(x)$
Version	1.0
Description	If the user gives an input $x = 90°$ for $Rad(x)$ the function may return the approximate value in radian as output.
Owner	Rokeya Begum Keya
Priority	High
Type	Functional
Difficulty	Medium
Verification Method	F2_getRadCheck_7

Requirement Id : F2-R8

Overview	$x = 180°$ in to the $Rad(x)$
Version	1.0
Description	If the user gives an input $x = 180°$ for $Rad(x)$ the function may return the approximate value (3.14159..) in radian as output.
Owner	Rokeya Begum Keya
Priority	High
Type	Functional
Difficulty	Medium
Verification Method	F2_getRadOneHundredAndEightyCheck_8

Requirement Id : F2-R9

Overview	$x = 0^\circ$ in to the $sin(x)$ function
Version	1.0
Description	If the user gives an input $x = 0^\circ$ for $sin(x)$ the function may return 0 as output.
Owner	Rokeya Begum Keya
Priority	High
Type	Functional
Difficulty	Medium
Verification Method	F2_getSinZeroCheck_9

Requirement Id : F2-R10

Overview	$x = (Positive\ Degree)$ in to the $sin(x)$ function.
Version	1.0
Description	If the user gives $x = any\ positive\ degree$ for $sin(x)$ the function may return the approximate value of $sin(positive\ degree)$ as output.
Owner	Rokeya Begum Keya
Priority	High
Type	Functional
Difficulty	Medium
Verification Method	F2_getSinFortyCheck_10

Requirement Id : F2-R11

Overview	$x = 0^\circ$ in to the $cos(x)$ function
Version	1.0
Description	If the user gives an input $x = 0^\circ$ for $cos(x)$ the function may return 1 as output.
Owner	Rokeya Begum Keya
Priority	High
Type	Functional
Difficulty	Medium
Verification Method	F2_getCosZeroCheck_11

Requirement Id : F2-R12

Overview	$x = (Positive\ Degree)$ in to the $cos(x)$ function.
Version	1.0
Description	If the user gives $x = any\ positive\ degree$ for $cos(x)$ the function may return the approximate value of $cos(positive\ degree)$ as output.
Owner	Rokeya Begum Keya
Priority	High
Type	Functional
Difficulty	Medium
Verification Method	F2_getCosFortyCheck_12

Requirement Id : F2-R13

Overview	Availability
Version	1.0
Description	The system may provide the calculation to the user within four seconds.
Owner	Rokeya Begum Keya
Priority	High
Type	Non-Functional
Difficulty	Medium

PROBLEM 2 - F3: Hyperbolic Sine, $sinh(x)$

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https://www.overleaf.com/project/610304de4e6b8d24f7c781b6 Repository address :
https://github.com/Dakatsu/SOEN6011Calculator

PROBLEM 2 - F5

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Team please add your content here

PROBLEM 2 - F7 : x^y

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Repository address : https://github.com/Dakatsu/SOEN6011Calculator

Requirements and Assumptions

[1][2]
The current section describes the requirements and assumptions to implement the function x^y.

Explicit Assumption : The transcendental function x^y will be accurate and accepts input which comprises of rational and irrational numbers.

Requirement Id : F7-R1

Overview	X(0) to the power of Y(0)
Version	1.0
Description	If the user gives an input for X as Zero and input for Y as Zero. The function may return the 1 as output.
Owner	Manimaran Palani
Priority	High
Type	Functional
Difficulty	Medium
Verification Method	F7_TestCase_1

Requirement Id : F7-R2

Overview	X(0) to the power of Y(Real Number)
Version	1.0
Description	If the user gives an input for X as zero and input for Y as any Real Number. The function may return zero as output.
Owner	Manimaran Palani
Priority	High
Type	Functional
Difficulty	Medium
Verification Method	F7_TestCase_2

Requirement Id : F7-R3

Overview	X(Positive Number) to the power of Y(0)
Version	1.0
Description	If the user gives an input for X of any positive number and input for Y as Zero.The function may return 1 as the output.
Owner	Manimaran Palani
Priority	High
Type	Functional
Difficulty	Medium
Verification Method	F7_TestCase_3

Requirement Id : F7-R4

Overview	X(Negative Number) to the power of Y (0)
Version	1.0
Description	If the user gives an input for X of any negative number and input for Y as Zero.The function may return 1 as the output.
Owner	Manimaran Palani
Priority	High
Type	Functional
Difficulty	Medium
Verification Method	F7_TestCase_4

Requirement Id : F7-R5

Overview	X(Positive Number) to the power of Y(1)
Version	1.0
Description	If the user gives an input for X as any positive number and input for Y as 1. The function may return X as the output.
Owner	Manimaran Palani
Priority	High
Type	Functional
Difficulty	Medium
Verification Method	F7_TestCase_5

Requirement Id : F7-R6

Overview	X(Positive Number) to the power of Y(Positive Number)
Version	1.0
Description	If the user gives an input for X as any positive number and input for Y as positive number. The function may return positive number as the output.
Owner	Manimaran Palani
Priority	High
Type	Functional
Difficulty	Medium
Verification Method	F7_TestCase_6

Requirement Id : F7-R7

Overview	X(Negative Number) to the power of Y(Positive Even Number)
Version	1.0
Description	If the user gives an input for X as any Negative number and input for Y as positive Even number. The function may return positive number as the output.
Owner	Manimaran Palani
Priority	High
Type	Functional
Difficulty	Medium
Verification Method	F7_TestCase_6

Requirement Id : F7-R8

Overview	X(Negative Number) to the power of Y(Positive Odd Number)
Version	1.0
Description	If the user gives an input for X as any negative number and input for Y as positive odd number. The function may return negative number as the output.
Owner	Manimaran Palani
Priority	High
Type	Functional
Difficulty	Medium
Verification Method	F7_TestCase_6

Requirement Id : F7-R9

Overview	Availability
Version	1.0
Description	The system may provide the response with output to the user within finite time.
Owner	Manimaran Palani
Priority	High
Type	Non-Functional
Difficulty	Medium

Bibliography

[1] ReqView : Nykamp DQ: Requirements Specification Templates
`https://www.reqview.com/doc/iso-iec-ieee-29148-templates`

[2] 29148-2018-ISO/IEC/IEEE International Standard-Systems and software engineering-Life cycle processes-Requirements engineering,
`https://standards.ieee.org/standard/29148-2018.html`