SOEN 6011 : SOFTWARE ENGINEERING PROCESSES

SUMMER 2022

ETERNITY

PROBLEM - 2

Requirements

ISO/IEC/IEEE 29148 Standard

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1 Function Requirements

1.1 Assumptions

The Standard Deviation function will accept an array X of input numbers. Each of these values x_i can either be a negative number, positive number, decimal number or a zero.

1.2 Requirements

The current section describes the requirements to implement the Standard Deviation, σ function.

Requirement Id : R1

Overview	If X = [0] in the σ function
Description	If the user gives 0 as input, the function will return 0 as output.
Priority	High
Type	Functional
Difficulty	Medium
Version	1.0
Owner	Prathika Anup Suvarna
Verification Method	F8_TestInputZero

Requirement Id : R2

Overview	X = [Single real number] in to the σ function
Description	If the user gives only one number as input, the function will return 0 as output.
Priority	High
Type	Functional
Difficulty	Medium
Version	1.0
Owner	Prathika Anup Suvarna
Verification Method	F8_TestSingleNumber

Requirement Id : R3

Overview	X = [Array of same real numbers] in the σ function
Description	If the user gives X = an array of same values as input, the function will return a 0 value as output.
Priority	High
Type	Functional
Difficulty	Medium
Version	1.0
Owner	Prathika Anup Suvarna
Verification Method	F8_TestSameNumbers

Requirement Id : R4

Overview	X = [Array of negative real numbers] in the σ function
Description	If the user gives X = an array of negative values as input, the function will return a positive real value as output.
Priority	High
Type	Functional
Difficulty	Medium
Version	1.0
Owner	Prathika Anup Suvarna
Verification Method	F8_TestNegativeNumbers

Requirement Id : R5

Overview	X = [Array of postive real numbers] in the σ function
Description	If the user gives X = an array of positive values as input, the function will return a positive real number as output.
Priority	High
Type	Functional
Difficulty	Medium
Version	1.0
Owner	Prathika Anup Suvarna
Verification Method	F8_TestPositiveNumbers

Requirement Id : R6

Overview	X = [Array of decimal numbers] in the σ function
Description	If the user gives X = an array of decimal values as input, the function will return a positive real value as output.
Priority	High
Type	Functional
Difficulty	Medium
Version	1.0
Owner	Prathika Anup Suvarna
Verification Method	F8_TestDecimalNumbers

Requirement Id : R7

Overview	x = a real number in the $\sqrt{x}$ function
Description	If x, a number is passed as input to our square root function, it will return the precise square root value.
Priority	High
Type	Functional
Difficulty	Medium
Version	1.0
Owner	Prathika Anup Suvarna
Verification Method	F8_TestSquareRoot

Requirement Id : R8

Overview	x = real number as base, y = real number as exponent in the x^y function
Description	If x, y, a base and exponent number is passed as input to our power function, it will return the precise power value as result.
Priority	High
Type	Functional
Difficulty	Medium
Version	1.0
Owner	Prathika Anup Suvarna
Verification Method	F8_TestPower

Requirement Id : R9

Overview	x = a char or string in Eternity.numericInputCheck(x) function
Description	If x is passed as a string input to our numericInputCheck() function, it will return false as result.
Priority	High
Type	Functional
Difficulty	Medium
Version	1.0
Owner	Prathika Anup Suvarna
Verification Method	F8_TestInputisNumber

Requirement Id : R10

Overview	Availability
Description	The system may provide the calculation to the user within finite time.
Priority	High
Type	Non-Functional
Difficulty	Medium
Owner	Prathika Anup Suvarna
Verification Method	F8_TestAvailability

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`