

CONCORDIA UNIVERSITY

Problem 1

SOEN 6011 - SOFTWARE ENGINEERING PROCESS

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# ETERNITY: FUNCTION

$(\sigma)$

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# 1 Introduction

## 1.1 Description

The standard deviation gives a measure of the amount of dispersion for a given set of values and is calculated as a square root of variance. The standard deviation function is denoted by a lower case Greek letter sigma  $\sigma$ .

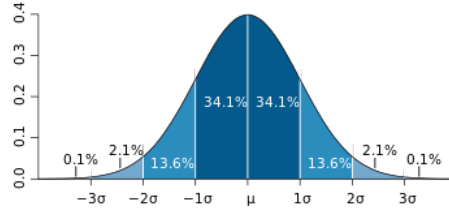


Figure 1: Graph of standard deviation function (Source: Google Images)

It is calculated as given below:

$$StandardDeviation = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n - 1}}$$

## 1.2 Domain

The domain of the  $\sigma(\sigma)$  function is all the real number  $(-\infty, +\infty)$ .

## 1.3 Co-Domain

The co-domain of the  $\sigma(\sigma)$  function is  $(0, +\infty)$ .

## 1.4 Unique Characteristics

- It measures dispersion of dataset relative to its mean.
- Function is expressed in same units as the data.
- The higher standard deviation indicates the data set are spread over the wider range.

## 1.5 Context of Use Model

This is a simple basic calculator to calculate the standard deviation of a group of numbers. The users can press any key given on the calculator to enter the input. A decimal point and a negative symbol is also provided on the calculator as the input can be a real number. The calculator will then return the output or a message which indicates that the given input is invalid in order to calculate the standard deviation.

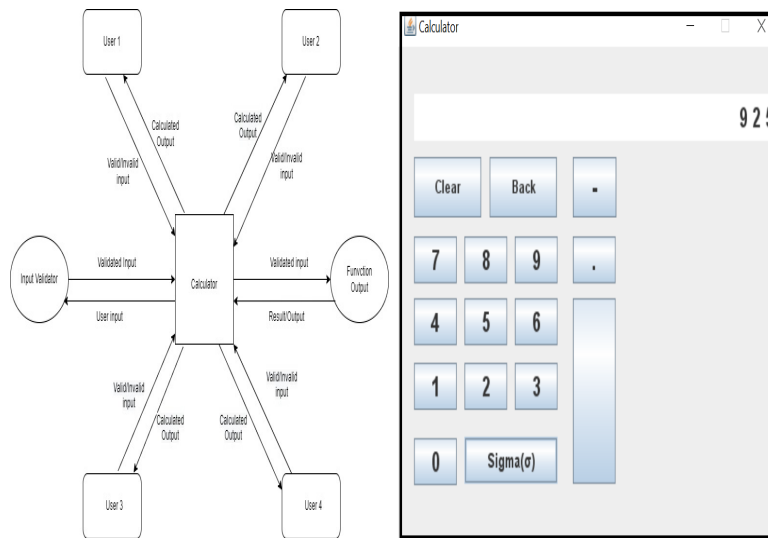


Figure 2: Graphical User Interface and Context of Use Model

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