SOEN 6011 **Aniket Tailor**
Software Engineering Processes **40195068**
Function 8 : Standard Deviation σ Date: 5 August 2022
Problem 2

Assumptions

Any variable, as long as it can be sorted, can have its variance and standard deviation determined. However, the standard deviation is only a useful indicator of dispersion for a measurement variable when the data have a symmetrical distribution, which is frequently a normal distribution. If these presumptions are not true, using the standard deviation to show the variability of observations in range plots and box-and-whisker plots is misleading. This assumption is also a prerequisite for assumptions on the percentage of observations that fall within the range of agreement.

Requirements

1. **First Requirement**
   - **ID =** F1
   - **Type =** Functional Requirement
   - **Version =** 1.0
   - **Priority =** High
   - **Description =** Standard deviation only deals with numbers and not strings.
2. **Second Requirement**
   - **ID =** F2
   - **Type =** Functional Requirement
   - **Version =** 1.0
   - **Priority =** High
   - **Description =** Standard deviation is the square root of Variance, hence it's value should not be negative.
3. **Third Requirement**
   - **ID =** F3
   - **Type =** Functional Requirement
   - **Version =** 1.0
   - **Priority =** Moderate
   - **Description =** It's important to keep in mind that the standard deviation occurs together with the variance.

4. **Fourth Requirement**
    - **ID =** F4
    - **Type =** Functional Requirement
    - **Version =** 1.0
    - **Priority =** High
    - **Description =** For calculating the mean, natural and real numbers should be considered.
5. **Fifth Requirement**
    - **ID =** F5
    - **Type =** Functional Requirement
    - **Version =** 1.0
    - **Priority =** High
    - **Description =** For calculating standard deviation, at-least two numbers should be given as input.
6. **Sixth Requirement**
    - **ID =** F6
    - **Type =** Functional Requirement
    - **Version =** 1.0
    - **Priority =** High
    - **Description =** If all the data values are same then the standard deviation should be 0.
7. **Seventh Requirement**
    - **ID =** F7
    - **Type =** Non Functional Requirement
    - **Version =** 1.0
    - **Priority =** Low
    - **Description =** Code should be well indented and easy to understand with proper documentation.