
Programming Concepts for Mechanical Engineers

Average and Standard Deviation

Title: Find the average and standard deviation of a given vector of numbers

Background: The average of numbers $(x_1, x_2, x_3, \dots, x_n)$ is given by

$$\bar{x} = \frac{\sum_{i=1}^n x_i}{n}$$

and the standard deviation of the numbers is given as

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

Exercise 1: Write a program using the 'for loop' to find the average and the standard deviation of given numbers in a row vector.

Exercise 2: Repeat Exercise 1 by writing a function *my_avg_stdev*. Test it adequately at least four times.

```
function [avg,stdev]=my_avg_stdev(x)
```

```
% x = array of numbers
```

```
% N = number of which you want to find the square-root
```

```
% avg= average of numbers
```

```
% stdev= standard deviation of numbers
```
