Vector Operations

Talk to a Teacher
National Mission on Education through ICT

http://spoken-tutorial.org

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Objectives

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- **Perform mathematical operations on vectors such as addition, subtraction and multiplication.**

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- **I am using Windows 7 OS and Scilab 5.2.2 for demonstration.**

Exercise 1

- **Define two vectors A,B with 1,5,8,19 and 19,8,5,1 elements respectively.**
- **Calculate A'*B-B'*A**
- **Calculate A*A'+B*B'**

Exercise 2

In Scilab Console, enter the following

Matrices: $A = \begin{bmatrix} 1 & \frac{1}{2} \\ \frac{1}{3} & \frac{1}{4} \\ \frac{1}{5} & \frac{1}{6} \end{bmatrix}$

$B = [\ 5\ 2\ ]$, $C = \begin{bmatrix} 4 & \frac{5}{4} & \frac{9}{4} \\ 1 & 2 & 3 \end{bmatrix}$

Compute each of the following and explain the errors, if any.

- $A * C - C * A$
- $2 * C - 6 * A$
- $(2 * C - 6 * A') * B'$
- $(2 * C - 6 * A') * C'$

Summary

In this tutorial, we have learnt to,

- **Define a vector using spaces or commas.**
- **Calculate length of a vector using the length() function.**
- **Find the transpose of vector or matrix using apostrophe.**

Summary

- **Define a matrix by using space/comma to separate the columns and semicolon to separate the rows.**
- **Find size of a matrix using size() function.**

Acknowledgement

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