

Assignment

Subject: Linear Algebra (MA-234)

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Submission Deadline: 18-12-2023

Objective: In this Linear Algebra assignment, students will learn diagonalization of a matrix by Singular Value Decomposition (SVD) and its applications.

Problem: Write down the detailed answers of the following questions by solving one example of matrix A of order $m \times n$ with $m \geq 4$, $n \geq 4$ with $m \neq n$.

- Write an introduction to singular value decomposition (SVD) and describe how its different from other diagonalization methods. Give some of its applications.
- What is difference between full SVD and reduced SVD. Give an example in both cases and decompose a matrix into full SVD and reduced SVD.
- How to compute the pseudoinverse (or Moore-Penrose inverse) of matrix A . Give an example and find the pseudoinverse.