

Student Name:
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Numerical Methods in Informatics - Exercise 2

Hand out: 19.10.2023 - Due to: 01.11.2023

Please upload your solutions to the Olat system.

Practice

2.1 Matrix Factorization and Determinants

- a) **(60 Min, 5 Points)** Matrix Factorization Please implement the function `lu(A)` in `backend.py`. The function takes a matrix as an input and returns the matrices L and U with $A = L \cdot U$. This function should not change the input A .

Hint:

- You will get 3 points at max if your solution solves $A=LU$ correctly
- You will get additional 2 points if your solution also solve $PA=LU$ correctly

- b) **(20 Min, 5 Points)** Determinants

Please implement the function `determinant(A)` in `backend.py`. The function takes a matrix as an input and returns the determinant of the given matrix.

Handing in:

Please only include your `backend.py` in your hand in.