Homework Batch I: Matrix Multiplication

Deadline: 25/03/2021

10/03/2021

Download the Python matrix template class from

> `https://moodle2.units.it/mod/resource/view.php?id=213844`

and:

1. implement the `strassen_matrix_mult` function to multiply two $2^n \times 2^n$ matrices by using the Strassen's algorithm;

2. generalize `strassen_matrix_mult` to deal with any kind of matrix pair that can be multiplied (possibly also non-square matrices) and prove that the asymptotic complexity does not change;

3. improve the implementation of the function by reducing the number of auxiliary matrices and test the effects on the execution time;

4. answer to the following question: how much is the minimum auxiliary space required to evaluate the Strassen's algorithm? Motivate the answer.

The solutions must be sent to acasagrande@units.it by March 25, 2021.