

## 7. Algorithmisation Practice #2

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# Exercises

- 1 Write a function that computes the greatest common denominator of two integers (Euclid's algorithm)
- 2 Write a function that shuffles a vector (swaps a reasonable number of random elements)
- 3 Write a function that erases elements with a certain value from a vector
- 4 Use `std::sort` to sort a vector of vectors, vector with lowest number of elements goes first

# Advanced Exercises

- 1 Write a function that computes the determinant of a matrix
- 2 Write a function that takes one argument `mult` and returns a lambda that multiplies its argument by `mult`
- 3 Create a function that can print a function of type `int` `somebodyDoSomething(int val)` by printing its  $x$  and  $f(x)$  from 0 to 10
- 4 Write a function that computes the eigenvalues of a matrix

## Exercises #2

- 1 Write a function that takes three arguments by reference and shuffles them
- 2 Write a function that computes the area of an ellipse using the Monte Carlo method
- 3 Create operators `-`, `*`, `/` and `^` that work on strings interpreted as numbers

# Homework

- Write a program that reads a file containing a table where one column is  $x$  and the other column is  $f(x)$  and writes a file that adds lines with values of  $x$  that were missing in the original one and interpolated values of  $f(x)$
- You have two weeks to do it