ALGORITHMS & THEORY | ALGORITMID TEOORIA

Teach by Code: Linear Algebra for Hardcore Computer Scientists

Master's / Bachelor's Thesis Project

OVERVIEW

Math courses could be taught completely differently if the audience consisted of Java programmers. In this thesis, we will do that. The goal is to develop human readable (but also working) Java code which explains basic Linear Algebra concepts. For example: A field has constants zero and one, and operators * and +; actual fields are derived from an abstract interface. A vector space over a field has constant zero, operators + and *; actual vector spaces are derived from an abstract interface. Concepts such as dimension, rank, linear mapping, matrix, ... can be explained through algorithms coded in Java.

GOALS

1. Design and write Java code for basic linear algebra concepts.
2. Make it maximally human readable.

REQUIREMENTS

As I cannot give any guidance in Java (only C++) a student for this project should be a Java wizard, and have the full power of Java's class mechanism (such as virtual abstract interface overriding -- I just made that up) at his/her disposal.

- Outstanding Java skills
- Interest in education
- No Linear Algebra required