CG Programming - S0006E - 2016
Week 1

1 Assignment 1 - Math Library

A well working vector library is fundamental for any 3D graphics project. Implement a C++ math library for vector and matrix operations with support for the following:

1. Homogenous 4D vectors and matrices
2. Vector operations:
   - Addition, substraction, scaling (multiply with a scalar), length, normalize, dot product, cross product
3. Matrix operations:
   - Product, product with vector
   - Initialization functions for rotation matrices around the x,y,z axis and an arbitrary vector.
   - Transpose and inverse

   Use operator overloading whenever suitable, add operators for array access using the [] operator.
   Use doxygen to create documentation from the source code, add a short description to all relevant functions.

The library is to be header only, so implement all function within the header file.

2 Assignment 2 - Setting up a project

We have provided you with a simple project framework to get you started, hosted on Github.

- The project uses *CMake* to configure the build process with visual studio.
- You can download the project as a zip file from:
  `https://github.com/gscept/lab-env/archive/master.zip` or be cloned using (TortoiseGit).
  Some basic documentation about the project is provided on the main page on:
  `https://github.com/gscept/lab-env/`
- Configure the project using *CMake*, using a output folder outside of the source code folder.
- Compile and run the example project provided

3 Assignment 3 - Adding another project

- Create a copy of the example project to use as your own, don't forget to change the name of the executable in *CMake*.
- Integrate your math library into your new project by moving it into your project's folder structure and add it to the include directories.

Delivery

Commit your complete project to a dedicated folder inside your SVN repository (e.g. S0006E/assignment) and upload the number of the revision to camvas rooms submission folder.
Deadline 2016-09-09 12:00