

TDT4195 LAB 1

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PART 1

The main function first initializes GLUT with any parameters the compiled executable might have been called with. It then initializes the display mode to a single window with RGBA color mode. The rest of the code is pretty straightforward, creating a window of a specified size at a specified position and displaying it. The display function calls `draw()`, which simply specifies the clear color to be black and clears the entire window buffer.

SETUP

Ubuntu 14.04, OpenGL 3.0 Mesa 10.1.3, freeglut3. Compiling with g++. Makefile attached with code.

PART 2

CML

The Configurable Math Library (CML) is a open source C++ library. It is intended for use in “games, graphics, computational geometry, and related applications”. Features advertised include vector, matrix and quaternion classes, generic element types in vectors or matrices, fixed-sized or dynamically resizable vectors and matrices, row- or column-vector notation, multiple coordinate systems and angle orders, projection and frustum features, and various built in functions including transformations.

Primary source: <http://cmldev.net/>

Eigen

Eigen is an open source C++ library, specializing in linear algebra. It is not specifically intended for graphics work, but can be used for it. Features advertised include arbitrary sized matrices, dense or sparse, different number types including integers and complex numbers, matrix decompositions and built in geometric transformations, including affine transformation matrices. Along with classes data structures it also boasts “complete and well-tested” algorithms that solve various problems.

Primary source: eigen.tuxfamily.org/

Vector Math

Vector Math is a C/C++ library by Sony. It was originally proprietary and only available to licensed Playstation developers, but later open sourced. This library seems to be more lacking in documentation than the others I have been looking at. It is a game development library, focusing on game physics and graphics and less on abstract math than the others. It is included as an extra plugin available in the more extensive Bullet game framework.

Primary source: <http://www.bulletphysics.org/Bullet/phpBB3/viewtopic.php?t=1322>