Graphics Software and OpenGL

CS116A

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Introduction

- Available graphics software

- What are OpenGL and GLUT

- A simple GLUT Program

Graphics Software

- Common 3D libraries: OpenGL, Mesa, DirectX, Shout3D, Java3D

- Web 3D languages: VRML, X3D

- High Level Tools: Maya, 3dstudio Max

- We will mainly be interested in OpenGL.

OpenGL

- Open, industry supported 3D Graphics standard developed at SGI

- Supported by many companies

- Predecessors: GKS and PHIGS

- Has languages bindings for C/C++, FORTRAN, etc.

- Setting up a display window varies according to OS

GLUT

- Cross platform interface to windowing system for OpenGL
- Allows use to avoid having to make OS specific windowing calls
- Same code with minor modifications will work on Windows, Mac, and Linux
- Less windowing code needed before getting to use actual graphics

GLUT Drawbacks

- Not as full-featured as native windowing mechanism. (Probably don't want to use for games)
- Copyright held by one person
- Development on GLUT relatively inactive
- Still it is very popular and the main point to learn graphics with OpenGL not how to mess with the windowing system

Setting up software

- OpenGL libraries come with Mac, Windows, Linux.
- Need to obtain GLUT. Follow link off class homepage.
- Need to add GLUT headers and libraries in correct place.
- For example, in Program Files the Visual Studio drill down till find the *\Include and *\Lib folders and put the files there.
- Need to add lib files to compile directives

Example Program