

GLUT

OpenGL Utility Toolkit

GLUT on Xcode

<http://blog.onesadcookie.com/2007/12/xcodeglut-tutorial.html>

- Create a new project (cocoa application)
- Empty the value of the `GCC_PREFIX_HEADER` field
- Add the `GLUT.framework` and the `OPENGL.framework`
- In the code file : `#include <GLUT/glut.h>`

GLUT on Visual Studio 2008

Download the pre-compiled binaries

<http://www.xmission.com/~nate/glut/glut-3.7.6-bin.zip>

- Include `glut.h` directory on the include path
- Include `glut32.lib` directory on the library path
- Include `glut32.dll` directory on the systems path
- In the code file : `#include <glut.h>`

Anatomy of a GLUT application

```
int main(int argc, char** argv)
```

```
{
```

```
    glutInit(&argc, argv);
```

```
    glutInitDisplayMode(GLUT_RGBA | GLUT_DOUBLE | GLUT_DEPTH);
```

```
    glutInitWindowSize(640, 480);
```

```
    glutCreateWindow("GLUT Program");
```

```
    glutDisplayFunc(display);
```

```
    glutReshapeFunc(reshape);
```

```
    glutIdleFunc(idle);
```

```
    glutMainLoop();
```

```
    return EXIT_SUCCESS;
```

```
}
```

Windows creation

CallBack functions

Infinite loop

Never reached statement

Also:

Other window related functions

```
glutInitWindowPosition(int x, int y);  
glutFullScreen(void);
```

Other callback based functions

```
void glutTimerFunc(unsigned int msec,void (*func)(int value), value);  
void glutKeyboardFunc(void (*func)(unsigned char key,int x, int y));  
void glutSpecialFunc(void (*func) (int key, int x, int y));  
void glutMouseFunc(void (*func)(int button, int state, int x, int y));
```

Some primitives

```
glutSolidSphere(GLdouble radius, GLint slices, GLint stacks);  
glutSolidCube(GLdouble size);  
glutSolidCone(GLdouble base, GLdouble height, GLint slices, GLint stacks);  
glutSolidTorus(GLdouble innerRadius, GLdouble outerRadius, GLint nsides, GLint rings);  
glutSolidDodecahedron(void);  
glutSolidTetrahedron(void);  
glutSolidIcosahedron(void);  
glutSolidOctahedron(void);  
glutSolidTeapot(GLdouble size);
```

And functions for:

Pop up menus

```
int glutCreateMenu(void (*func)(int value));  
void glutAddMenuEntry(char *name, int value);  
void glutAttachMenu(int button);
```

Fonts

```
void glutBitmapCharacter(void *font, int character);  
void glutStrokeCharacter(void *font, int character)
```

Retrieving Info

<http://www.opengl.org/documentation/specs/glut/spec3/node70.html>

```
int glutGet(GLenum state);
```

References

1. Lighthouse 3D GLUT Tutorial:
<http://www.lighthouse3d.com/opengl/glut/index.php>
2. The OpenGL Utility Toolkit (GLUT) Programming Interface API Version 3
<http://www.opengl.org/documentation/specs/glut/spec3/spec3.html>
3. An introduction to GLUT
<http://mindfuck.de-brauwer.be/articles/glut/>
4. Xcode/GLUT Tutorial
<http://blog.onesadcookie.com/2007/12/xcodeglut-tutorial.html>

Examples.

1. Parametric roses.

http://en.wikipedia.org/wiki/Rose_%28mathematics%29

2. Marer rose

http://en.wikipedia.org/wiki/Maurer_rose