

GUI Programming under GNU/Linux using C/C++

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GNU/Linux

- GNU history (my take on it !)
- The necessity of a Windowing System
- Xfree86 project

X Window System

- Started at MIT in the year 1984
- X is a protocol
- X consortium
- X under Linux (Xfree86)
- X Library
- Xt , Motiff (Lesstiff) and GUI wars
- The Concept of a Window Manager

X Library

- A Fine grained Library
- Xlib Programming Model
- Tedious to write huge programs without a toolkit
- Motif vs OpenLook
- Let us write some Code
- How to compile and Link Xlib application
- Demo of other samples

GIMP

- GIMP is a capable image editing program
- To make GIMP portable across platforms GDK was developed (now runs on Windows/Mac too)
- Widgets were written using GTK+ (which is layered on top of GDK)
- Port GDK to a new platform , GIMP is there.
- Packaged GTK/GDK as a library and named it GTK+ (used for Gnome)

GTK+

- A C based library
- GTK+ programming model
- Event Wiring
- How to compile and link GTK+ applications
- Hello World
- Demos

KDE

- KDE project was conceived
- Decided to use the Qt library from Trolltech
- A proprietary GUI toolkit !
- Licensing Controversy
- Matthias Ettrich went to work for TrollTech
- Qt became de-facto library for Linux GUI
- Qt is now Owned by Nokia (dual licensing model)

Qt (aka “Cute”)

- A C++ GUI toolkit
- Cross platform
- Qt programming model
- Qt build system
- Hello World
- How to compile and link Qt applications
- Qt Event System (Signals/Slots)

Qt (contd...)

- How to compile using GNU make (manual build)
- Qt Meta Object System
- Meta Object Compiler (MOC)
- Extensions to C++ language for Event handling
- Qt does it's own rendering ! (ala Swing)
- This enables cross platform look and feel.

A 2D rendering Library which display graphics on Qt

- A software renderer which implements Line , Triangle (u can do 3D !) , Filled Triangle, Ellipse, Circle, Filled Ellipse , Polygon , Filled Polygon (with holes)
- Written for Visual C++/Windows
- By changing 10 lines of code , it can now display graphics using QPainter
- Dissection of the Library

WxWidgets

- Formerly , WxWindows (a seattle based company forced the name change !)
- Programming model similar to Microsoft Foundation class (if you know MFC , you will be at home)
- Runs on Windows/Mac/Embedded devices
- WxWidgets programming model
- Compiling and building WxWidgets applications
- Demos (and a free book in the bruce perens series)

Summary

- A general discussion on the topics taken
- Q & A
- Going Further ! (I want to go)