Advanced Programming with Qt Widgets

Based on Qt 5.9, created on January 30, 2018

KDAB

The Qt, OpenGL and C++ Experts
Qt Fundamentals Recap

- The Story of Qt
- Important Application Classes
- Practical Tips for Developers
- Introducing Qt Creator
  - Common Features of Qt's Object Model
    - Qt's Object Model and QWidgets Basics
- Object Communication Using Signals & Slots
  - Connecting Signals to Slots
  - Defining Slots
  - Defining Signals
- Layout Management
- Qt Designer
- Windows
  - Main Windows
  - Dialogs

Application Infrastructure

- Validating Input
- Resources
- Settings
- Commandline Arguments
- Drag and Drop
- Internationalization and Localization
- The Event System
- Providing Help
- File Management
- Printing

Model/View with Qt

- Concepts
- Models
  - List Models
  - Table Models
  - Tree Models
  - Value-based Models
  - Proxy Models
- Views
  - Item Views
  - Delegates
- Selection
- Drag and Drop

Graphics and Styling

- Painting
  - Painting Basics
  - Color Handling
  - Painting Operations
  - Painting Performance
- Graphics View
  - Architecture
  - Coordinate Systems and Transformations
  - Creating Custom Items
- Styling
  - Widget Styles
  - Style Sheets
- Processing
  - Text Encoding
  - Working with Regular Expressions
- Rich text Editing and Formatting
- HTML/Web Content
  - Introduction
  - Classes Involved
  - JavaScript
  - Tooling
  - Features for Browsers

Supplemental Topics

- Application Infrastructure Extras
  - Qt Animation Framework
  - State Machine Framework
  - Application Scripting
  - Plug-ins
- Graphics Extras
  - Graphics View II
  - QImage
  - Custom Image Formats
  - OpenGL in Qt

Supplemental Topics (cont'd)

- Qt Core Extras
  - Advanced Container Classes
  - Memory mapped files
  - Smart Pointers in Qt
- Development and Testing
  - Deployment
  - Development Tools for Linux
  - QMake
  - Some Thoughts About Portability
  - Qt Debugging Aids
  - QTestLib
  - Testing with Squish
  - Introduction to Git
  - Introduction to CMake
- Modern C++ Quick Tour
  - Introduction to Modern C++
  - Explicit Virtual Overrides
  - Uniform Initialization
  - Constructors
  - Type Inference
  - Range-Based for Loop
  - Lambdas
  - Functional Programming
- Multithreading
  - Concepts
  - Synchronization Primitives
  - Foundation
  - QtConcurrent
  - Atomic Operations
  - Relation to Model/View
## Supplemental Topics (cont'd)

### XML, JSON and SQL
- Basic XML APIs
- XPath, XQuery and XSLT
- XML Schema
- JSON
- SQL Database API

### Interprocess Communication
- Network Programming
- QtDBus
- QtDBus II
- QProcess
- Shared Memory with Qt