Programming with Qt for Desktops

This is a 5-day, in-depth introduction to Qt programming, primarily focusing on using Qt Widgets and the associated development tools (Qt Designer, Qt Creator and friends). Students will experience the challenges of cross-platform development with exercises that involve porting applications from Windows to MacOS (or vice versa).

Course Outline

Qt Core and Widgets
Qt Fundamentals
• The Story of Qt
• Developing a Hello World Application
• Hello World Using Qt Creator
• Practical Tips for Developers

Objects and Core Types
Core Classes
• String Handling
• Container Classes
• File Handling

Objects
• Qt’s Object Model
• Variants
• Properties

Object Communication
• Signals & Slots
• Event Handling

Widgets & Designer
Widgets
• Designer Introduction
• Common Widgets
• Layout Management
• Guidelines for Custom Widgets

Dialogs
• Dialogs
• Common Dialogs
• Designer Forms and Code Integration

Applications and Painting
Application Creation
• Main Windows
• Designer: Main Windows, Menus, and Actions
• Settings
• The System Clipboard
• Drag and Drop
• Resources
• Translation for Developers
• Deploying Qt Applications

Painting and Styling
• Painting on Widgets
• Color Handling
• Painting Operations
• Style Sheets

Models and Views
Model/View
• Model/View Concept
• Showing Simple Data
• Proxy Models
• Custom Models
Model/View II
• Delegates
• Editing Item Data
• Data Widget Mapper
• Drag and Drop
• Custom Tree Models

Course Availability
On-site, Open Enrollment

Subject: Qt

Duration: 5 days

Course Prerequisites:
• Working knowledge of C++ programming
• Basic knowledge of GUI programming
• Previous Qt experience is not required

Course Learning Objectives:
• A working knowledge of the capabilities and limitations of Qt
• Experience in programming with Qt
• Course slides and sample programs

Graphics View
Graphics View
• Using GraphicsView Classes
• Coordinate Systems and Transformations
• Creating Custom Items

Graphics View 2
• Widgets in a Scene
• Drag and Drop
• Effects
• Performance Tuning

Other Topics
Animation
• Starting Animation
• Animation Groups
• States and Animations
• Events and Transitions
Qt Additional Models

MultiThreaded Programming and Multimedia in Qt

Multithreaded Programming
• Qt Multithreading
• Threading Primitives
• QtConcurrent

Multimedia Programming
• Qt Multimedia

Inter-Process Communication
• QProcess
• Shared Memory with Qt
• Network Programming
• QNetworkAccessManager Request/Reply
• Bearer Management API
• TCP/UDP Sockets
• SSL Sockets
• DNS and Proxies
• QtDBus - Qt Bindings to D-Bus
• QtDBus - Advanced Topics

Other Topics
Extending Qt with Plugins
• Qt Plugins
• Plugin Example: Custom Image Formats

Data Processing
• Basic XML APIs
• SQL Database API
• SQL Models

XML Patterns
• XPath, XQuery, and XSLT
• QtXmlPatterns
• XML Schema