Qt Group

Qt Student Developer Certificate Curriculum

Qt 6.12 LTS

PUBLIC

1. Qt Student Developer (Qt 6.12 LTS)

This test is designed for developers pursuing entry-level certification in the Qt Framework. The test covers key topics across four areas: Qt Tooling, Qt foundations, Qt Quick and QML development, and Qt application backend development. Upon successfully passing the test, you will be awarded the Qt Student Developer certificate.

The exam contains 50 single- and multi-select questions and the passing score is 70%.

Qt Tooling

- Know Qt licensing options: GPL, LGPL, commercial
- Setup of kits, Qt versions, compilers, and debuggers
- Creation of projects using wizards
- Debug and Release builds
- Basic CMake command use
- Application deployment on desktop

Basic Application Development

- Logging and debug messages
- Starting Qt applications

Qt Object Model

- QObject
- Parent/child relationship
- Stack and heap allocations
- The concept of implicit sharing

Signals and slots

- Observer patterns and signals and slots
- Signal/slots connections
- Connection types and use cases, when to use each type

Meta-object system

- Q_OBJECT use
- QVariant
- Properties

Core Classes

- Basic string manipulation functions

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- Containers: QList and QVector

QML Language Concepts

- Element hierarchy, parents and children
- Stacking order
- Types, properties
- Property bindings
- Signals
- Methods
- Custom items
- Custom properties and property aliases

Layouts

- Nested layouts
- Anchors: anchor lines and item-based anchors, margins
- Positioners: row, column, spacing
- Element coordinates

User Interactions

- Mouse interactions

Dynamic QML

- Loader

Model / view Framework

- Basic concepts: roles and indices
- QM ListView
- Delegates
- Using C++ models with QML (QAbstractListModel-based)

QML – C++ integration

- The concept of QML engine
- Using QObject to define new types

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- Exposing properties and objects
- Type registration

Multitasking

- Thread creation and cleanup
- Subclassing threads
- Worker objects

Runnables

- Understanding the concept of a thread pool
- Queuing and executing runnables

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