Qt Tutorials Course Outline
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Qt Core
- **Beginner**
  - Qt and Qt Creator
    - Overview
    - Licensing
    - Downloading
    - Installing
    - Configuration
    - Kits
    - Project files
    - Help
  - Overview of C++
    - History
    - Legacy C++
    - Modern C++
    - Qt and C++
    - Main function
    - Standard library
  - Project Types
    - Console
    - Widget
    - QML
    - Library
    - Example: Hello World
  - Console App
    - Main function
    - qDebug
    - STDOUT
    - Hello World
  - Variables
    - Comments
    - Booleans
    - Numbers
    - Enums
    - Structs
  - Pointers
    - Creating
    - Deleting
    - Stack vs Heap
    - Memory management
  - Flow Control

- - Qint
    - QString
    - QDate
    - QTime
    - QDateTime
    - QVariant
    - Example: using a QVariant to store unknown data types
- **Intermediate**
  - Pointers
    - Parent and Child
    - QWeakPointer
    - QScopedPointer
    - QSharedPointer
    - Example: Using QScopedPointer
  - Collections
    - QList
    - QSet
    - QHash
    - QMap
    - QLinkedList
    - Example: Lists of objects
  - File System
    - QDir
    - QFile
    - QFileInfo
    - Reading Files
    - Writing files
    - Appending files
    - Write modes
    - QFileSystemWatcher
    - QLockfile
    - Example: Reading files
  - Encoding data
    - ASCII
    - UTF-8
    - XML
    - JSON
    - Base64
    - Serializing objects
    - Example: Serialize object and load it from disk
  - Macros
    - QObject Macro
    - qDeleteAll
    - qDebug
    - qFill

- qSort
- qCopy
- qFind
- qSort
  - System
    - QSysInfo
    - QSettings
    - Determine OS at run time
    - Example: Run code depending on the OS
  - Timer
    - QTimer
    - SingleShot
    - Repeating
    - Example: File watcher
  - Meta Object System
    - QMetaObject
    - Q_ClassInfo
    - Invoke Method
    - Return Type
  - Design Patterns
    - Singleton patterns
    - Parent child
    - Factories
    - Prototypes
- **Advanced**
  - Sockets
    - Networking fundamentals
    - TCP vs UDP
    - TCP Socket
    - TCP Server Socket
    - QNetworkAccessManager
    - UDP
    - Example: TCP – serialize object and send it to client
  - Threads
    - MoveToThread
    - Qthread
    - QFuture
    - QThreadPool & Qrunnable
    - QConcurrence
    - Example: TCP Server
  - Models
    - Model view programming
    - QStringList
    - QStandardModel
    - QfileSystemModel

- - - QAbstractItemModel
    - QAbstractList
    - QAbstractTableModel
  - Database
    - Databases
    - Setup MySQL
    - Connection
    - Add Items
    - Update Items
    - Delete Items
    - Search items
    - QSqlQueryModel
    - QSqlTableModel
    - QSqlRelationalTableModel
  - Charts and Plotting
    - Line and spline charts
    - Area and scatter charts
    - Bar charts
    - Pie charts
    - Box-and-whiskers charts
    - Candlestick charts
    - Polar charts
  - Plugins
    - Creating
    - Loading
    - Using
    - Example: TCP Server with Plugins

Qt Widgets
- Beginner
  - Dialogs
  - Buttons
  - Input
  - Layouts
  - Containers
- Intermediate
  - QMainWindow
  - ListviewWidget
  - Listview and Model
  - TreeviewWidget
  - Treeview and Model
- Advanced

QML
- Beginner
- Intermediate
- Advanced

Qt Embedded
- Beginner
- Intermediate
- Advanced

Qt Masters – each one is a separate class
- 3D – Use Qt 3d Studio and Blender
- Firebase
- Boost.io
- OpenCV
- Encryption – OpenSSL or Botan
- High performance TCP Server
- Database