
Table of Contents

<i>Preface</i>	<i>xi</i>
1. Introduction	1
Why GUI Toolkits?	1
Why Portability?	3
Why Qt?	3
Implementing Cross-Platform GUI Libraries	4
Acquiring Qt	6
Compiling and Installing Qt	8
C++ as Used by Qt	16
Getting Help	17
2. First Steps in Qt Programming	19
Hello, world!	19
Using the Qt Reference Documentation	23
Adding an Exit Button	26
Introduction to Signals and Slots	28
Event Handling and Simple Drawings with QPainter	37
3. Learning More About Qt	45
Adding Menus	45
Adding a Scrolled View	55
Adding a Context Menu	63
File I/O	71

4. A Guided Tour Through the Simple Widgets	81
General Widget Parameters	85
Widget Styles	86
Buttons	88
Selection Widgets	91
Widgets for Bounded-Range Input	95
Scrollbars	100
Menu-Related Widgets	102
Arrangers	103
Tab-Related Widgets	108
Text-Entry Fields	108
Labels	110
Widgets for the Office	113
Progress Bars	120
Scrolled Views	121
List Views	122
Icon Views	128
Widgets for Tabular Material	129
Widgets for Displaying Rich Text	132
5. A Guided Tour Through the Qt Dialog Boxes	134
Predefined Dialog Boxes	134
Building Blocks for Your Own Dialog Boxes	145
6. Using Layout Managers	155
Layout Manager Basics	155
Laying Out Widgets in Rows and Columns	157
Nested Layout Managers	160
Grid Layout	162
Implicit Geometry Management	164
7. Some Thoughts on GUI Design	167
8. Container Classes	173
Available Container Classes	174
Choosing a Container Class	176
Working with Reference-Based Container Classes	177
Working with Value-Based Container Classes	181

9. Graphics	184
Animations	184
Printing	186
Managing Colors	191
Basic QPainter: Drawing Figures	196
Advanced QPainter	198
Double-Buffering and Other Nifty Techniques	203
Independently Movable Objects with QCanvas	208
Working with Styles	213
Loading and Saving Custom Image Formats	215
Setting a Cursor	218
10. Text Processing	219
Internationalization and Localization of On-Screen Text	219
Validating User Input	227
Working with Regular Expressions	232
Reading and Writing XML Files	237
Rich Text	245
11. Working with Files and Directories	248
Reading a Text File	248
Traversing a Directory	251
File Information	253
Reading and Writing Configuration Data	254
12. Interapplication Communication	258
Using the Clipboard	258
Drag-and-Drop	259
13. Interfacing with the Operating System	265
Working with Date and Time Values	265
Loading Code Libraries Dynamically	266
Spawning Child Processes	269
Playing Sounds	271
14. Writing Your Own Widgets	274
Implementing a Coordinate Selector	276
Implementing a Browse Box	285

15. Focus Handling	299
16. Advanced Event Handling	302
Event Filters	302
Sending Synthetic Events	304
17. Advanced Signals and Slots	306
Signals and Slots Revisited	306
Connecting Several Buttons to One Slot	309
Actions	310
18. Providing Help	313
19. Accessing Databases	317
Installation of the SQL Module	319
Connecting to a Database	320
Simple Data Retrieval	322
Data Retrieval with Cursors	325
Data Display	328
Data Manipulation	337
Anything Else?	341
20. Multithreading	343
Configuring Qt for Multithreading	344
Using Qt's Multithreading Classes	344
Multithreading Pitfalls	348
Alternatives to Multithreading	348
21. Debugging	350
22. Portability	353
Why Portability Is Desirable	353
How to Write Portable Programs	355
Danger Ahead: When Even Qt Is Not Portable	356
Building Projects Portably with qmake	360
23. Qt Network Programming	365
Low-Level Socket Access	365
Higher-Level Network Access	370

24. <i>Interfacing Qt with Other Languages and Libraries</i>	375
OpenGL Programming with Qt	375
Writing Netscape Plug-ins	379
Integrating Xt Widgets	387
Interfacing Qt with Perl	389
25. <i>Using the Visual C++ IDE for Qt Programs</i>	397
Importing an Existing Makefile	397
Creating Your Own Project from Scratch	398
Using qmake to Create a Project File	399
Using the MS Visual Studio Integration	399
26. <i>Visual Design with Qt Designer</i>	400
Why Do You Need A GUI Designer?	400
Creating a Simple Application with the Help of Qt Designer	401
Adding Functionality to a Dialog Box by Subclassing	418
Using Layout Management	427
Useful Techniques	436
<i>Appendix: Answers to Exercises</i>	455
<i>Bibliography</i>	477
<i>Index</i>	479