

Contents

Preface	xi
Foreword	xiii
Guide to Readers	xv
1 Introduction	1
1.1 What Is a Design Pattern?	2
1.2 Design Patterns in Smalltalk MVC	4
1.3 Describing Design Patterns	6
1.4 The Catalog of Design Patterns	8
1.5 Organizing the Catalog	9
1.6 How Design Patterns Solve Design Problems	11
1.7 How to Select a Design Pattern	28
1.8 How to Use a Design Pattern	29
2 A Case Study: Designing a Document Editor	33
2.1 Design Problems	33
2.2 Document Structure	35
2.3 Formatting	40
2.4 Embellishing the User Interface	43
2.5 Supporting Multiple Look-and-Feel Standards	47
2.6 Supporting Multiple Window Systems	51
2.7 User Operations	58
2.8 Spelling Checking and Hyphenation	64

2.9 Summary	76
 Design Pattern Catalog 79	
 3 Creational Patterns 81	
Abstract Factory	87
Builder	97
Factory Method	107
Prototype	117
Singleton	127
Discussion of Creational Patterns	135
 4 Structural Patterns 137	
Adapter	139
Bridge	151
Composite	163
Decorator	175
Facade	185
Flyweight	195
Proxy	207
Discussion of Structural Patterns	219
 5 Behavioral Patterns 221	
Chain of Responsibility	223
Command	233
Interpreter	243
Iterator	257
Mediator	273
Memento	283
Observer	293
State	305
Strategy	315

Template Method	325
Visitor	331
Discussion of Behavioral Patterns	345
6 Conclusion	351
6.1 What to Expect from Design Patterns	351
6.2 A Brief History	355
6.3 The Pattern Community	356
6.4 An Invitation	358
6.5 A Parting Thought	358
A Glossary	359
B Guide to Notation	363
B.1 Class Diagram	363
B.2 Object Diagram	364
B.3 Interaction Diagram	366
C Foundation Classes	369
C.1 List	369
C.2 Iterator	372
C.3 ListIterator	372
C.4 Point	373
C.5 Rect	374
Bibliography	375
Index	383