

Table of Contents

Terms of Use.....	3
Disclaimer.....	3
Contact Us.....	3
Other Courses.....	3
3 rd Party Copyrights	3
Table of Contents	4
Before You Begin.....	9
Minimum Hardware and Software Requirements.....	9
Conventions Used in This Text	10
What You Will Learn and Do In This Course	11
Prerequisite Computer Skills	11
Chapter One: Introduction to Windows Programming.....	13
Lesson One: History of Windows	13
Lesson Two: The Evolution of Windows Programming	18
Lesson Three: Windows Programming Languages.....	21
Chapter Review.....	24
Activity: Install Visual Studio C# Express Edition	25
Chapter Two: Fundamentals of C#	27
Lesson One: Introduction to C#.....	27
Lesson Two: Visual C# Express Edition Software	29
Lesson Three: Hello World!	34
Chapter Review.....	39

Table of Contents

Activity: Enhance Hello World.....	40
Chapter Three: Windows Programming Concepts	41
Lesson One: Common Windows Elements.....	41
Lesson Two: C# Syntax.....	44
Lesson Three: Event-Driven Programming	46
Lesson Four: Namespaces	50
Chapter Review.....	54
Activity: A More Personal Hello.....	55
Chapter Four: Data Types and Variables	57
Lesson One: Value Data Types.....	57
Lesson Two: Variables.....	60
Lesson Three: Reference Data Types	63
Lesson Four: Introducing Strings	65
Chapter Review.....	68
Activity: Experiment with Data Types	69
Chapter Five: Basic Flow Control	71
Lesson One: Logical Expressions.....	71
Lesson Two: Using the “if” Statement	74
Lesson Three: For Loops.....	76
Lesson Four: While Loops.....	79
Chapter Review.....	83
Activity: Jeepers, Beepers!.....	84
Chapter Six: User Input.....	87
Lesson One: Text Boxes	87
Lesson Two: List Boxes and Combo Boxes	89
Lesson Three: Radio Buttons and Check Boxes	93
Chapter Review.....	95
Activity: Telling Tall Tales	96

Chapter Seven: Math Functions in C#	99
Lesson One: Math Operators (+, -, *, /, %).....	99
Lesson Two: .NET Framework Math Functions.....	102
Lesson Three: A Simple Calculator.....	103
Chapter Review.....	107
Activity: Divide and Multiply	108
Chapter Eight: Working With Strings.....	109
Lesson One: Common String Operations.....	109
Lesson Two: Formatting Strings.....	113
Lesson Three: Converting Between Strings and Numbers	116
Chapter Review.....	118
Activity: Caesar's Cipher	119
Chapter Nine: Methods.....	121
Lesson One: Writing and Calling Methods.....	121
Lesson Two: Method Parameters and Return Values.....	123
Lesson Three: Calling Methods	125
Chapter Review.....	130
Activity: What's Your Birthday?	131
Chapter Ten: Debugging and Exceptions	133
Lesson One: The Visual C# Express Edition Debugger	133
Lesson Two: Debugging Demonstration	135
Lesson Three: C# Runtime Exceptions	139
Chapter Review.....	142
Activity: Divide By Zero	143
Chapter Eleven: Collections	145

Table of Contents

Lesson One: Arrays.....	145
Lesson Two: Enumeration and ForEach	148
Lesson Three: Linked Lists.....	150
Chapter Review.....	155
Activity: Your To-Do List	156
Chapter Twelve: Object-Oriented Programming.....	159
Lesson One: Object-Oriented Concepts	159
Lesson Two: History of OOP.....	161
Lesson Three: Defining an Object	162
Chapter Review.....	166
Activity: Creating Songs	167
Chapter Thirteen: Classes in C#.....	169
Lesson One: Defining a Class	169
Lesson Two: Properties and Methods	170
Lesson Three: Public vs. Private	172
Lesson Four: Constructors	173
Lesson Five: Static Members.....	174
Chapter Review.....	176
Activity: Your Song Player.....	177
Chapter Fourteen: Sorting and Recursion.....	179
Lesson One: Simple Sorting	179
Lesson Two: Recursion	182
Lesson Three: Recursive Sorting	185
Chapter Review.....	190
Activity: The Number Sort.....	191
Chapter Fifteen: File I/O	193
Lesson One: Using Files in a Program	193
Lesson Two: Reading and Writing Text Files.....	195

Lesson Three: Reading and Writing Binary Files	198
Lesson Four: SaveFileDialog and OpenFileDialog	202
Chapter Review.....	206
Activity: Your Own Notepad.....	207
Chapter Sixteen: Inheritance and Polymorphism.....	209
Lesson One: Base Classes and Derived Classes	209
Lesson Two: Using References to Base and Derived Classes.....	213
Lesson Three: Virtual Base Methods	215
Lesson Four: The “Object” Base Class	217
Lesson Five: Using Base Features from Derived Classes	219
Chapter Review.....	222
Activity: Creating the Chess Pieces	223
Chapter Seventeen: Final Project.....	227
Lesson One: The Game of Chess.....	227
Lesson Two: The Starter Project	230
Lesson Three: Initializing the Game	235
Lesson Four: Finishing handleClick()	239
Lesson Five: Moving Pawns.....	241
Lesson Six: Moving Other Pieces, Testing for Check.....	245
What's Next?.....	251