

# Table of Contents

<b>Dedication</b>	iii
<b>Preface</b>	xiii

## **Chapter 1: Overview of the .NET Framework**

Introduction to the .NET Framework	1-2
Operating System	1-2
Common Language Runtime	1-3
Base Class Libraries	1-3
ASP.NET and Windows Forms	1-3
Components of .NET	1-3
The .NET Framework Class Library	1-3
Common Language Runtime	1-4
Garbage Collection	1-4
Assemblies	1-5
Manifest	1-6
Modules	1-6
Private Assemblies	1-7
Shared Assemblies	1-7
Namespace	1-8
Visual Studio .NET	1-8
Getting Started with VB.NET	1-9
IDE (integrated development environment) Components	1-12
Toolbox	1-12
Solution Explorer Window	1-15
Properties Window	1-19
Server Explorer Window	1-19
Adding Controls to the Windows Forms Application	1-20
Adding Source Code to the Control	1-21
Executing the Windows Application	1-22
Creating Web Application	1-23
Adding Controls to the Web Forms	1-23
Adding Source Code to the Application	1-25
Executing the Web Application	1-25
Self-Evaluation Test	1-28
Review Questions	1-28

## **Chapter 2: Variables, Operators, and Constants**

Introduction	2-2
Variables	2-2
Variable Naming Rules and Conventions	2-2

Data Types	2-3
Declaration of Variables	2-4
Initializing a Variable	2-5
Option Explicit	2-10
Data Type Conversion	2-10
Boxing and Unboxing	2-13
Static Local Variables	2-13
Scope of a Variable	2-14
Lifetime of a Variable	2-16
Operators	2-17
\ Operator	2-18
MOD Operator	2-18
Operator Precedence	2-19
Grouping within Parentheses	2-20
Compound Assignment Operators	2-20
Constants	2-21
Formatting Numbers	2-22
FormatNumber	2-23
FormatDateTime	2-23
FormatPercent	2-25
Self-Evaluation Test	2-26
Review Questions	2-26
Exercise 1	2-27
Exercise 2	2-27

### Chapter 3: Control and Loop Structures

Introduction	3-2
Control Structures	3-2
Sequential Control Structure	3-2
Decision Control Structure	3-2
Loop Control Statements	3-27
Logical Operators	3-45
The And Operator	3-45
The Or Operator	3-46
The Xor Operator	3-46
The Not Operator	3-47
Self-Evaluation Test	3-52
Review Questions	3-52
Exercise 1	3-52
Exercise 2	3-52

### Chapter 4: Arrays and Procedures

Introduction	4-2
Arrays	4-2
Declaring an Array	4-2

Initializing an Array	4-3
Accessing an Array with a Loop	4-3
Bounds Checking	4-4
For Each-Next Statement	4-4
Parallel Arrays	4-6
Dynamical Arrays	4-7
Multidimensional Arrays	4-8
Two-Dimensional Arrays	4-8
Initializing Two-Dimensional Arrays	4-11
Three-Dimensional Arrays	4-11
Jagged Arrays	4-12
Array Class in VB.NET	4-12
Procedures	4-15
Sub Procedure	4-15
Declaring a Sub Procedure	4-15
Calling a Sub Procedure	4-16
Passing Arguments to a Procedure	4-18
Functions Procedure	4-22
Property Procedure	4-26
Exception Handling	4-28
Structured Exception Handling	4-28
Unstructured Exception Handling	4-28
Self-Evaluation Test	4-29
Review Questions	4-29
Exercise 1	4-30

## Chapter 5: Common Controls

Introduction	5-2
TextBox Control	5-2
Properties of the TextBox Controls	5-2
Adding ScrollBars to the TextBox Controls	5-3
Aligning the Text in the TextBox Controls	5-3
Read-only Property of the TextBox Controls	5-4
Creating a TextBox Control through Source Code	5-4
Label Control	5-4
Formatting Text in Label Controls	5-4
Aligning Text in Label Controls	5-4
LinkLabel Control	5-5
Properties of LinkLabel Controls	5-5
Creating a LinkLabel Control	5-5
Creating a LinkLabel Control through Source Code	5-6
ListBox Control	5-8
Creating a ListBox Control	5-8
Properties of the ListBox Controls	5-9
Creating Multicolumn ListBox Controls	5-10
CheckedListBox Control	5-11

Adding Items to a CheckedListBox Controls	5-12
Creating Multicolumn CheckedListBox Control through Source Code	5-12
PictureBox Control	5-13
Choose Image	5-13
Adding an Image to the PictureBox Control through Source Code	5-15
Pickers	5-16
DateTimePicker Control	5-16
MonthCalendar Control	5-17
TreeView Control	5-18
Properties of TreeView Control	5-19
Adding a TreeView Control to a Form	5-19
ListView Control	5-20
Adding a ListView Control to a Form	5-20
RichTextBox Control	5-23
Adding a RichTextBox Control to a Form	5-23
Creating RichTextBox Control through Source Code	5-24
Button Control	5-24
Properties of Button Controls	5-24
Creating a Button Control through Source Code	5-25
CheckBox Control	5-26
Properties of the CheckBox Controls	5-26
Creating a CheckBox Control through Source Code	5-26
ComboBox Control	5-27
Creating a ComboBox Control through Source Code	5-28
MaskedTextBox Control	5-28
NotifyIcon Control	5-29
Creating a NotifyIcon	5-30
NumericUpDown Control	5-31
ProgressBar Control	5-32
Properties of ProgressBar Controls	5-32
RadioButton Control	5-32
ToolTip Control	5-33
WebBrowser Control	5-34
Self-Evaluation Test	5-42
Review Questions	5-42
Exercise 1	5-43

## Chapter 6: Containers, Menus, and, Toolbars

Introduction	6-2
Containers	6-2
FlowLayoutPanel Control	6-2
GroupBox Control	6-3
Creating GroupBox Control through Source Code	6-3
Panel Control	6-4
Creating Panel Control through the Source Code	6-5
SplitContainer Control	6-6

TabControl Control	6-6
TableLayoutPanel Control	6-8
Menus & Toolbars	6-12
ContextMenuStrip	6-12
MenuStrip	6-13
StatusStrip	6-16
ToolStrip	6-18
ToolStripContainer	6-19
Self-Evaluation Test	6-41
Review Questions	6-41
Exercise 1	6-42
Exercise 2	6-42

## Chapter 7: Components

Introduction	7-2
BackgroundWorker Component	7-2
ErrorProvider Component	7-2
EventLog Component	7-3
FileSystemWatcher Component	7-3
HelpProvider Component	7-4
ImageList Component	7-5
MessageQueue Component	7-5
PerformanceCounter Component	7-9
ServiceController Component	7-9
Process Component	7-9
Timer Component	7-10
Self-Evaluation Test	7-43
Review Questions	7-43
Exercise 1	7-44

## Chapter 8: Working with MDI, In-built Dialogs, and Printing Controls

Introduction	8-2
Creating Multiple-Document Interface (MDI) Applications	8-2
In-built Dialogs	8-4
Self-Evaluation Test	8-38
Review Questions	8-38

## Chapter 9: Concepts of Object-oriented Programming

Introduction	9-2
Structures	9-2
Classes	9-5
Defining a Class	9-5
Objects	9-5

Creating a Class	9-6
Using the 'Is' Keyword to Compare Objects	9-8
Constructors	9-8
Destructors	9-10
Inheritance	9-11
Public Inheritance	9-14
Protected Inheritance	9-16
Private Inheritance	9-16
Friend Inheritance	9-16
Overriding	9-18
MustInherit Keyword	9-19
Overloading	9-20
Procedure Overloading	9-20
Polymorphism	9-21
Inheritance-based Polymorphism	9-21
Interface-based Polymorphism	9-23
Self-Evaluation Test	9-32
Review Questions	9-32
Exercise 1	9-32

## Chapter 10: Working with Database

Introduction	10-2
Databases	10-2
Data Providers, Data Adapters, and Datasets	10-3
Server Explorer	10-4
Editing the Columns of the DataGridView Control	10-8
Basic SQL Commands	10-9
SELECT Command	10-9
WHERE Command	10-10
BETWEEN Command	10-10
LIKE Command	10-10
Relational Database	10-12
Joins	10-12
Data Binding	10-13
Architecture of Data Binding	10-14
Simple Binding	10-14
Complex Binding	10-16
Data Binding with Controls	10-17
Data Binding with the ComboBox Control	10-17
Data Binding with the CheckBox Control	10-18
DataBase Connection for Web Applications	10-19
Creating Tables	10-21
Self-Evaluation Test	10-39
Review Questions	10-39
Exercise 1	10-40
Exercise 2	10-40

**Chapter 11: Introduction to Web Forms**

Introduction	11-2
Web Forms	11-2
Creating a Web Application	11-2
Adding Controls to a Web Form	11-4
Web Controls	11-6
Literal Control	11-6
LinkButton Control	11-6
MultiView Control	11-6
RequiredFieldValidator Control	11-7
CompareValidator Control	11-7
RangeValidator Control	11-8
RegularExpressionValidator Control	11-8
Calendar Control	11-9
Table Control	11-12
HTML Controls	11-15
Text Area Control	11-15
Checkbox Control	11-16
Radio Button Control	11-16
HTML Table Control	11-16
Command Button Control	11-17
Self-Evaluation Test	11-24
Review Questions	11-25
Exercise 1	11-25
Exercise 2	11-26
<b>Student Projects</b>	<b>1</b>
<b>Index</b>	<b>1</b>