

## Fundamentals of Java Programming Module One Index

Section	Title	Page
<b>One</b>	<b>Introduction to Java</b>	3
	– Usage of Java	4
	– History of Java	5
	– Structure of Java	6
	– Flexibility of Java Programming	7
<b>Two</b>	<b>Using Java in DOS</b>	8
	– Using the DOS Window	9
	– DOS Operating System Commands	10
	– Compiling and Executing Java Programs in DOS	12
	– Using JAVAC to Compile Java Programs	13
	– <i>Exercise One</i>	19
<b>Three</b>	<b>Getting the Java Developer Kit (JDK)</b>	21
	– Downloading Java Developer Kit	22
	– Installing the Java Developer Kit	23
<b>Four</b>	<b>First Steps to Programming in Java</b>	28
	– Introduction to Java Programming	29
	– Anatomy of Java Programming	30
	– Commenting in Java Programs	33
	– Java Classes	34
	– Bracketing in Java	35
	– Declaring Methods in Java	37
	– Passing Arguments in a Java Program	38
	– Case Sensitivity in Java	39
	– Using System.out.println in Java	40
	– Syntax Rules in Java Programming	43
	– <i>Exercise Two</i>	44
	<b>Five</b>	<b>Datatypes</b>
– Java Datatypes		46
– Handling Strings in Java		47
– Concatenating Strings in Java		50
– Manipulating Strings in Java		52
– Changing Strings to Uppercase in Java		54
– Replacing Strings in Java		55
– Methods Used on Strings in Java		56
– <i>Exercise Three</i>		59
– Performing Calculations in Java		62
– Calculations and Concatenation in Java		63
– Calculations and Precedence in Java		64
– Manipulating Numbers in Java		65
– Concatenating Numbers Together in Java		68
– <i>Exercise Four</i>		71
– Storing Variables in Java		73
– Variable Datatypes in Java		75
– Using MAX_VALUE in Java		76
– The String Variable in Java		77
– The Char Variable in Java		78
– Variable Naming in Java	79	

## Fundamentals of Java Programming Module One Index

Section	Title	Page
	– Using Variables in Java	80
	– Boolean Variables in Java	84
	– Incrementing Variables in Java	85
	– Using Postfix in Java	87
	– Manipulating Variables in Java	88
	– Protecting Variables in Java	89
	– Using Constant Variables in Java	91
	– Wrapper Classes in Java	92
	– String Class Methods in Java	96
	– Character Class Methods in Java	97
	– Casting and Converting Values in Java	98
	– The valueOf Method in Java	101
	– The toString Method in Java	103
	– The toValue Method in Java	104
	– Converting Char to String in Java	106
	– Converting Classes to Primitives in Java	107
	– Number Formatting in Java	108
	– Using Locales in Java	115
	– <i>Exercise Five</i>	117
<b>Six</b>	<b>Conditional Tests</b>	121
	– Making Decisions in Java	122
	– Testing Booleans in Java	125
	– Nested Conditions in Java	128
	– Blocked Conditions in Java	130
	– Class Conditions in Java	131
	– Class Methods in Java	132
	– String Class Methods in Java	133
	– Character Class Methods in Java	135
	– Boolean Class Methods in Java	138
	– Case Switch Conditions in Java	139
	– Using Break in Java Switches	141
	– Compound Conditions in Java	143
	– AND Conditions in Java (&&)	144
	– OR Conditions in Java (  )	145
	– XOR Conditions in Java (^)	146
	– NOT Conditions in Java (!=)	147
	– Short-circuiting Conditions in Java	148
	– <i>Exercise Six</i>	150
<b>Seven</b>	<b>Arrays and Looping</b>	153
	– Array Variables in Java	154
	– Declaring Arrays in Java ([])	155
	– Populating Arrays in Java	160
	– Defining Multi-Dimensional Arrays	163
	– Populating Multi-Dimensional Arrays	164
	– Converting Char Arrays to Strings	166
	– Copying Arrays Using ArrayCopy	167
	– Looping Methods in Java	169

## Fundamentals of Java Programming Module One Index

Section	Title	Page
	– While Looping in Java	170
	– Do While Looping in Java	172
	– For Looping in Java	173
	– Continue Looping in Java	174
	– Ternary if-else Operator in Java	176
	– Branching in Looping in Java	179
	– The Break Statement in Java	180
	– The Continue Statement in Java	182
	– The Return Statement in Java	183
	– Sending Arguments to Methods	184
	– Using Length with Arguments	186
	– <i>Exercise Seven</i>	188
<b>Eight</b>	<b>Javac Arguments</b>	194
	– Javac Switches	195
	– Compiling Multiple Files	201
	– Using a Command File With Javac	202
<b>Nine</b>	<b>Concepts of OOPS</b>	204
	– Introduction	205
	– Classes and Instances	206
	– Class and Instance Variables	209
	– Inheritance in Java	213
	– <i>Exercise Eight</i>	216
<b>Ten</b>	<b>Modular Programming</b>	217
	– Introduction	218
	– Multiple Methods	219
	– Multiple Classes	223
	– Multiple Classes and Instances	226
	– Multiple Files	231
	– Returning Values in Java	233
	– Definition of Scope in Java	240
	– Packages in Java	243
	– Defining Packages in Java	244
	– Using Packages in Java	248
	– Overloading Methods in Java	253
	– Overriding and Extending Classes	257
	– Class Access Levels in Java	265
	– Method Access Levels in Java	266
	– Variable Access Methods in Java	269
	– <i>Exercise Nine</i>	270
<b>Eleven</b>	<b>Exception Handling in Java</b>	271
	– Error Handling in Java	272
	– Trying Exceptions in Java	273
	– Catching Exceptions in Java	274
	– Throw Exceptions in Java	282
	– Catch All Exceptions in Java	283
	– Using Finally in Java	284
	– Throws and Modular Programming	286

## Fundamentals of Java Programming Module One Index

Section	Title	Page
	– Developer Defined Exceptions in Java	297
<b>Twelve</b>	<b>Dates in Java</b>	304
	– Using Dates in Java	305
	– Date and Time Variables	307
	– currentTimeMillis()	312
	– DateFormat in Java	314
	– SimpleDateFormat Method	319
	– getTimeInstance Method in Java	323
	– SimpleDateFormat Method for Time in Java	326
	– Calendar Class in Java	328
	– Gregorian Calendar in Java	338
	– Converting Calendar to Date in Java	344
	– Converting Date to Calendar in Java	345
	– <i>Exercise Ten</i>	346
<b>Thirteen</b>	<b>System Properties</b>	348
	– Using System Properties in Java	349
	– List of System Properties in Java	350
	– System.getProperty	351
<b>Fourteen</b>	<b>Interfacing with the OS</b>	352
	– File Handling in Java	353
	– Reading from Files in Java	355
	– Writing to Files in Java	360
	– IOException in Java	363
<b>Fifteen</b>	<b>Object</b>	364
	– The Object Superclass in Java	365
<b>Sixteen</b>	<b>Dimensions</b>	369
	– The Dimension Datatype in Java	370
	– Examples of Using Dimensions in Java	371
	– Methods for Dimensions in Java	372
<b>Seventeen</b>	<b>Documentation</b>	375
	– Documenting Java Programs	376
	– Using Javadoc	377
	– <i>Exercise Eleven</i>	401

## Fundamentals of Java Programming Module Two Index

Section	Title	Page
<b>One</b>	<b>High Level Containers</b>	3
	– Swing and AWT in Java	4
	– Using JWindow in Java	8
	– Using JFrame in Java	10
	– Using Dialog Boxes in Java	23
	– Using Message Dialogs in Java	24
	– Using Confirm Dialogs in Java	30
	– Using Input Dialogs in Java	33
	– <i>Exercise One</i>	35
	– Using Icons in Java	38
	– Using ImageIcon in Java	39
	– Using Option Dialogs in Java	40
	<b>Two</b>	<b>Look and Feel</b>
– Using Color in Java		47
– Using Font in Java		49
– Using setLookAndFeel in Java		55
<b>Three</b>	<b>JComponent</b>	58
	– The JComponent Class in Java	59
	– Methods to Change Appearance in Java	60
	– Methods to Process Components in Java	64
	– <i>Exercise Two</i>	68
<b>Four</b>	<b>Event Handling</b>	70
	– Listening for Events in Java Swing	71
	– Public Listeners in Java	76
	– Private Listeners in Java	79
	– Implemented Listeners in Java	81
	– Events and Listeners in Java	84
<b>Five</b>	<b>Panes and Panels</b>	86
	– Containers in Java	87
	– Using JLabel in Java	89
	– BorderLayout in Java	105
	– createEmptyBorder in Java	108
	– createLineBorder in Java	109
	– createBevelBorder in Java	110
	– createEtchedBorder in Java	113
	– createMatteBorder in Java	115
	– createTitledBorder in Java	117
	– createCompoundBorder in Java	127
	– <i>Exercise Three</i>	130
	– JPanel and Layouts in Java	133
	– FlowLayout in Java	136
	– GridLayout in Java	140
	– BorderLayout in Java	144
	– Combining Layouts in Java	148
	– BoxLayout in Java	151
– CardLayout in Java	153	
– GridBagLayout in Java	157	

## Fundamentals of Java Programming Module Two Index

Section	Title	Page
	– SpringLayout in Java	182
	– SpringUtilities in Java	188
	– Class Instances in Java	190
	– <i>Exercise Four</i>	195
<b>Six</b>	<b>Timers and Threads</b>	197
	– Introduction	198
	– Timers in Java	199
	– Threads in Java	204
<b>Seven</b>	<b>JTextComponent</b>	206
	– Methods in JTextComponent	207
<b>Eight</b>	<b>Input Components</b>	208
	– Introduction	209
	– JTextField in Java	210
	– JPasswordField in Java	217
	– JTextArea in Java	220
	– JFormattedField in Java	225
	– JComboBox in Java	232
	– FocusListener in Java	237
	– <i>Exercise Five</i>	240
<b>Nine</b>	<b>Selection Components</b>	243
	– Introduction	244
	– JButton in Java	245
	– ActionListener in Java	254
	– JCheckBox in Java	258
	– ItemListener in Java	264
	– JToggleButton in Java	268
	– JRadioButton in Java	270
	– JList in Java	279
	– ListSelectionListener in Java	288
	– ListDataListener in Java	290
	– DefaultListModel in Java	291
	– Using Vectors in Java	292
	– Using Enumeration in Java	301
	– <i>Exercise Six</i>	303
	– JTable in Java	307
	– MouseListener in Java	329
	– JSpinner in Java	333
	– SpinnerNumberModel in Java	334
	– SpinnerListModel in Java	337
	– SpinnerDateModel in Java	339
	– ChangeListener in Java	344
	– JSlider in Java	346
	– JTrees in Java	352
	– TreeExpansionListener in Java	364
	– TreeSelectionListener in Java	365
	– JProgressBar in Java	366
	– Cursors in Java	372

## Fundamentals of Java Programming Module Two Index

Section	Title	Page
	– JColorChooser in Java	375
	– ChangeListener in Java	379
	– JColorChooser in Java	382
	– JFileChooser in Java	385
	– <i>Exercise Seven</i>	393
<b>Ten</b>	<b>More Containers</b>	396
	– Introduction	397
	– JScrollPane in Java	398
	– JSplitPane in Java	404
	– JSeparator in Java	410
	– JTabbedPane in Java	412
	– ChangeListener in Java	433
	– JInternalFrame in Java	434
	– InternalFrameListener in Java	449
	– JDesktopPane in Java	451
	– JLayeredPane in Java	454
	– <i>Exercise Eight</i>	464
<b>Eleven</b>	<b>More Selection Components</b>	466
	– Menus in Java	467
	– JMenuBar in Java	468
	– JMenu in Java	469
	– JMenuItem in Java	471
	– JCheckBoxMenuItem in Java	476
	– JRadioButtonMenuItem in Java	477
	– JPopupMenu in Java	479
	– JToolBar in Java	483
	– <i>Exercise Nine</i>	492
<b>Twelve</b>	<b>Applets</b>	495
	– Introduction	496
	– Embedding Java in HTML	497
	– Using Appletviewer in Java	501
	– JApplet in Java	504
	– Using Swing in JApplet	508
	– Menus in JApplet	513
	– InternalFrames and JApplet	514
	– Accessing Images within JApplet	515
	– Using Parameters with JApplet	517
	– JApplet versus Java Applications	519
	– JApplet or Java Applications	520
	– Accessing System Properties in Java	524
	– <i>Exercise Ten</i>	526

## **Fundamentals of Java Programming Module Two Index**

### **Appendices:**

- J1 – Standard Colors**
- J2 – HTML Tags**
- J3 – Javadoc Settings**
- J4 – Escape Sequences**
- J5 – Listeners and Components**
- J6 – Listeners and Events**
- J7 – Date and Time Formats**
- J8 – Calendar Values**
- J9 – IO Exceptions**

### **Delegate Questionnaire**