



Chapter 1 : Java Fundamentals		1-1 to 1-84
1.1	Programming Approach from Procedural to Object Orientation (OO) Methodologies	1-1
1.2	Comparison of C++ and Java	1-3
1.3	Introduction to Object Oriented Programming Methodology	1-4
1.4	Features of Object Oriented Programming (OOP)	1-4
1.5	Important Terminologies for Object Oriented Programming	1-5
1.6	Java Evolution : History	1-6
1.7	Features of Java	1-7
1.8	Java Virtual Machine (JVM).....	1-8
1.9	Tokens of Java	1-9
1.9.1	Character Set of Java	1-10
1.9.2	Keywords.....	1-11
1.9.3	Identifiers.....	1-11
1.9.4	Data Types	1-12
1.9.5	Constants and Variables.....	1-13
1.9.6	Escape Sequences.....	1-13
1.9.7	Operators.....	1-14
1.9.7(A)	Unary Operators	1-14
1.9.7(B)	Binary Operators	1-16
1.9.7(C)	Ternary Operator	1-19
1.9.7(D)	Assignment Operators	1-19
1.9.7(E)	Selection Operators.....	1-20
1.9.8	Precedence and Associativity of Operators.....	1-20
1.10	Expressions	1-22
1.11	Comments	1-24
1.12	Input / Output in Java.....	1-24
1.12.1	Displaying Output in Java	1-24
1.12.2	Accepting Input in Java.....	1-25
1.12.3	Accepting Input using BufferedReader Class	1-26
1.13	First Program of Java.....	1-26
1.14	Installing and Implementing Java.....	1-28
1.14.1	Java Development Kit (JDK).....	1-28
1.15	Type Casting and Type Conversion in Java.....	1-29
1.16	Solved Programs.....	1-30
1.17	Command Line Arguments	1-37
1.18	Introduction to Control Statements	1-39
1.19	The for Loop.....	1-39



1.19.1	Programs Based on for Loop	1-40
1.19.2	Nested for Loop.....	1-52
1.20	while and do-while Loops.....	1-62
1.20.1	Programs Based on while and do-while Loop.....	1-64
1.21	The if-else Selective Statement.....	1-69
1.21.1	Programs using if-else Statement.....	1-70
1.21.2	if-else Ladder or if-else if.....	1-74
1.22	Switch-Case Selective Statement	1-77
1.23	Branching Statements (Break and Continue).....	1-82

Chapter 2 : Classes and Objects**2-1 to 2-28**

2.1	Introduction to Objects.....	2-1
2.1.1	State and Behaviour of an Object	2-1
2.1.2	Introduction to Java Access Modifiers	2-1
2.2	Java Member Methods	2-2
2.3	Constructors, Destructors, Modifiers, Iterators and Selectors.....	2-9
2.3.1	Constructors.....	2-9
2.3.1(A)	Parameterized Constructor	2-9
2.3.1(B)	Default Constructor	2-12
2.3.1(C)	Copy Constructor.....	2-15
2.4	Passing Objects to a Method	2-18
2.5	Returning Objects from a Method.....	2-20
2.6	Call by Value and Call by Reference	2-22
2.6.1	Call by Value.....	2-22
2.6.2	Call by Reference	2-24
2.7	Static Class Members.....	2-25
2.8	The “this” Keyword.....	2-26

Chapter 3 : Methods and Inheritance in JAVA**3-1 to 3-62**

3.1	Arrays.....	3-1
3.2	Multi-dimensional Arrays	3-12
3.3	Strings.....	3-19
3.3.1	Methods of String Class	3-19
3.4	Methods in Java	3-27
3.5	Recursive Methods	3-31
3.6	Introduction to Inheritance.....	3-34
3.7	Single Inheritance	3-35
3.8	Multi Level Inheritance.....	3-39
3.9	Hierarchical Inheritance	3-43



3.10	Method Overriding	3-46
3.11	Keyword “final” and Final class	3-48
3.12	Java Abstract Class and Method	3-50
3.13	Polymorphism.....	3-54
3.14	Static Polymorphism.....	3-54
3.14.1	Constructor Overloading	3-54
3.14.2	Method Overloading	3-55
3.15	Dynamic Polymorphism.....	3-58
3.15.1	Dynamic Method Dispatch.....	3-58
3.16	The finalize() Method Instead of Destructor in Java.....	3-60
3.17	The Super Keyword.....	3-61

Chapter 4 : Interfaces and Packages**4-1 to 4-19**

4.1	Interface.....	4-1
4.1.1	Introduction	4-1
4.1.2	Extending an Interface.....	4-1
4.1.3	Variables in Interface	4-1
4.1.4	Difference between Interface and Abstract Class.....	4-1
4.2	Introduction to Packages.....	4-5
4.3	Creating a Package.....	4-6
4.4	Creating a Sub-Package	4-7
4.5	Importing a Package	4-9
4.6	The java.lang Package	4-10
4.6.1	Wrapper Classes	4-10
4.6.2	Other Classes in java.lang.....	4-13
4.6.3	Math	4-14
4.7	The java.util Package	4-15
4.7.1	Date	4-17
4.7.2	Calendar.....	4-17
4.7.3	Vector	4-18
4.7.4	Hashtable.....	4-19
4.7.5	Collection Classes	4-19

Chapter 5 : Multithreading and Exception Handling**5-1 to 5-29**

5.1	Introduction to Exception Handling.....	5-1
5.2	Checked and Unchecked Exceptions.....	5-1
5.2.1	Checked Exceptions.....	5-1
5.2.2	Unchecked Exceptions	5-1
5.3	try-catch-finally	5-4



5.3.1	Multiple Try Catch Block.....	5-7
5.3.2	Nested Try Catch Block.....	5-10
5.4	Keyword “throws”.....	5-12
5.5	Keyword “throw”.....	5-13
5.6	Introduction to Threads.....	5-16
5.7	Making Thread.....	5-17
5.7.1	Implementing the Runnable Interface.....	5-17
5.7.2	Extending Thread Class.....	5-18
5.8	Life Cycle of a Thread.....	5-20
5.8.1	New Born State.....	5-20
5.8.2	Active State.....	5-21
5.8.3	Blocked State.....	5-21
5.8.4	Dead State.....	5-21
5.9	Creating Multiple Threads.....	5-21
5.10	Thread Methods.....	5-23
5.11	Thread Synchronization.....	5-26

Chapter 6 : Graphics Programming and File Handling**6-1 to 6-21**

6.1	Introduction to AWT, Graphics and Swings Packages.....	6-1
6.2	Graphics Class and its Methods.....	6-2
6.2.1	Drawing Lines.....	6-2
6.2.2	Drawing Rectangles.....	6-4
6.2.3	Drawing Ovals and Circles.....	6-5
6.2.4	Drawing Arcs.....	6-7
6.2.5	Drawing Polygons.....	6-8
6.2.6	Changing Colors.....	6-10
6.3	Miscellaneous Graphics Programs.....	6-12
6.4	File Handling in Java.....	6-14
6.5	Concept of Streams, Stream Classes And Random File Access.....	6-19