

Core Java Detailed Syllabus

What will you get?

1. Practical Training
2. Assignments
3. Question Bank

About the Trainer:

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Corporate Trainer

Experience: Over 16+ years of experience

Conducts Corporate and Classroom training on various technologies.

The History and Evolution of Java

The Creation of Java

Java Applets

Security

Portability

Java's Magic: The Bytecode

Servlets: Java on the Server Side

The Java Buzzwords

Simple

Object-Oriented

Robust

Multithreaded

Architecture-Neutral

Interpreted and High Performance

Distributed

Dynamic

The Evolution of Java

An Overview of Java

Object-Oriented Programming

Two Paradigms

Abstraction

The Three OOP Principles

A First Simple Program

Entering the Program

Compiling the Program

A Closer Look at the First Sample Program

A Second Short Program

Whitespace

Identifiers

Literals

Comments

Separators

The Java Keywords

The Java Class Libraries

Data Types, Variables, and Arrays

Java Is a Strongly Typed Language

The Primitive Types

Integers

byte

short

int

long

Floating-Point Types

float

double

Characters

Booleans

A Closer Look at Literals

Integer Literals

Floating-Point Literals

Boolean Literals

Character Literals

String Literals

Variables

Declaring a Variable

Dynamic Initialization

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The Scope and Lifetime of Variables

Type Conversion and Casting

Java's Automatic Conversions

Casting Incompatible Types

Automatic Type Promotion in Expressions

The Type Promotion Rules

Arrays

One-Dimensional Arrays

Multidimensional Arrays

Alternative Array Declaration Syntax

Control Statements

Java's Selection Statements

if

switch

Iteration Statements

while

do-while

for

The For-Each Version of the for Loop

Nested Loops

Jump Statements

Using break

Using continue

return

Operators

Arithmetic Operators

The Basic Arithmetic Operators

The Modulus Operator

Arithmetic Compound Assignment

Operators

Increment and Decrement

The Bitwise Operators

The Bitwise Logical Operators

The Left Shift

The Right Shift

The Unsigned Right Shift

Bitwise Operator Compound Assignments

Relational Operators

Boolean Logical Operators

Short-Circuit Logical Operators

The Assignment Operator

The ? Operator

Operator Precedence

Using Parentheses

Introducing Classes

Class Fundamentals

The General Form of a Class

A Simple Class

Declaring Objects

A Closer Look at new

Assigning Object Reference Variables

Introducing Methods

Adding a Method to the Box Class

Returning a Value

Adding a Method That Takes Parameters

Constructors

Parameterized Constructors

The this Keyword

Instance Variable Hiding

Garbage Collection

The finalize() Method

A Stack Class

A Closer Look at Methods and Classes

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Overloading Methods
Overloading Constructors
Using Objects as Parameters
A Closer Look at Argument Passing
Returning Objects
Recursion
Introducing Access Control
Understanding static
Introducing final
Arrays Revisited
Introducing Nested and Inner Classes
Exploring the String Class
Using Command-Line Arguments
Varargs: Variable-Length Arguments
Overloading Vararg Methods
Varargs and Ambiguity
Inheritance
Inheritance Basics
Member Access and Inheritance
A More Practical Example
A Superclass Variable Can Reference a
Subclass Object
Using super
Using super to Call Superclass Constructors
A Second Use for super
Creating a Multilevel Hierarchy
When Constructors Are Called
Method Overriding
Dynamic Method Dispatch
Why Overridden Methods?
Applying Method Overriding
Using Abstract Classes
Using final with Inheritance
Using final to Prevent Overriding
Using final to Prevent Inheritance
The Object Class

Packages and Interfaces

Packages
Defining a Package
Finding Packages and CLASSPATH
A Short Package Example
Access Protection
An Access Example
Importing Packages
Interfaces
Defining an Interface
Implementing Interfaces
Nested Interfaces
Applying Interfaces
Variables in Interfaces
Interfaces Can Be Extended

Exception Handling

Exception-Handling Fundamentals
Exception Types
Uncaught Exceptions
Using try and catch
Displaying a Description of an Exception
Multiple catch Clauses
Nested try Statements
throw
throws
finally
Java's Built-in Exceptions
Creating Your Own Exception Subclasses
Chained Exceptions
Using Exceptions

String Handling

The String Constructors
String Length
Special String Operations

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String Literals
String Concatenation
String Concatenation with Other Data Types
String Conversion and toString()
Character Extraction
charAt()
getChars()
getBytes()
toCharArray()
String Comparison
equals() and equalsIgnoreCase()
regionMatches()
startsWith() and endsWith()
equals() Versus ==
compareTo()
Searching Strings
Modifying a String
substring()
concat()
replace()
trim()
Data Conversion Using valueOf()
Changing the Case of Characters Within a String
Additional String Methods
StringBuffer
StringBuffer Constructors
length() and capacity()
ensureCapacity()
setLength()
charAt() and setCharAt()
getChars()
append()
insert()
reverse()
delete() and deleteCharAt()
replace()
substring()

Input/Output: Exploring java.io

The Java I/O Classes and Interfaces
File
Directories
Using FilenameFilter
The listFiles() Alternative
Creating Directories
The Closeable and Flushable Interfaces
The Stream Classes
The Byte Streams
InputStream
OutputStream
FileInputStream
FileOutputStream
ByteArrayInputStream
ByteArrayOutputStream
Filtered Byte Streams
Buffered Byte Streams
SequenceInputStream
PrintStream
DataOutputStream and DataInputStream
RandomAccessFile
The Character Streams
Reader
Writer
FileReader
FileWriter
CharArrayReader
CharArrayWriter
BufferedReader
BufferedWriter
PushbackReader
PrintWriter
The Console Class
Using Stream I/O
Improving wc() Using a StreamTokenizer
Serialization
Serializable

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Externalizable
ObjectOutput
ObjectOutputStream
ObjectInput
ObjectInputStream
A Serialization Example
Stream Benefits