

Java Course Contents

CORE JAVA

Introduction To Java

- o History Of Java
- o Features Of Java (Platform Independent, Simple, Object Oriented, Robust, Distributed, Portable, Dynamic, Secure, Multithreaded, Performance)

Getting Started with Java SE

- o What is Java?
- o How to Get Java
- o Running A First Java Program In IDE (Eclipse/Net Beans)

Data types and Variables

- o Primitive Data types
- o Declarations
- o Variable Names
- o Numeric Literals
- o Character Literals
- o String
- o String Literals
- o Arrays
- o Non-Primitive Data types
- o The Dot Operator

Operators and Expressions

- o Assignment Operator
- o Arithmetic Operators
- o Relational Operators
- o Logical Operators
- o Increment and Decrement Operators
- o Operate-Assign Operators (+=, etc.)
- o The Conditional Operator
- o Operator Precedence
- o Implicit Type Conversions

Control Flow

- o Statements
- o Conditional (if) Statements
- o Adding an else if
- o Conditional (switch) Statements
- o while and do-while Loops
- o for Loops
- o Enhanced for Loop
- o The break Statement

Object-Oriented Programming

- o Introduction to Object-Oriented Programming
- o Classes and Objects
- o Encapsulation
- o Inheritance
- o Polymorphism

Objects and Classes

- o Defining a Class
- o Creating an Object
- o Instance Data and Class Data
- o Methods
- o Constructors
- o this
- o Access Modifiers(private, public, protected, default)
- o Encapsulation
- o Static

Inheritance And Polymorphism in Java

- o Inheritance
- o Extending Classes
- o Using Derived Classes
- o Super class Reference
- o Polymorphism
- o Overloading Methods
- o Method Overriding
- o Using super
- o The Object Class

Advanced Inheritance and Language Constructs

- o Enumerated Types - Pre-Java 5.0
- o Enumerated Types Today

Abstract Classes Interfaces

- o Abstract Classes
- o Interfaces
- o Using Interfaces
- o Implementing and Extending Interfaces
- o Prohibiting Inheritance and Overriding through Final
- o Abstract classes Vs Inheritance

Packages

- o Packages
- o The import Statement
- o Static Imports
- o CLASSPATH and Import
- o Defining Packages
- o Package Scope

Inner Classes

- o Inner Classes
- o Member Classes
- o Local Classes
- o Anonymous Classes
- o Instance Initializers
- o Static Nested Classes

Exception Handling

- o Exceptions Overview
- o Types of Exception
- o Exception Handling
- o Try and Catch
- o Throwing Exceptions
- o Throw and throws
- o Exception Methods
- o Creating and using User Defined Exception
- o Errors and Runtime Exceptions
- o The finally Block
- o Assertions

Introduction to Threads

- o Non-Threaded Applications
- o Threaded Applications
- o Java Thread Model
- o Creating and Running Threads
 - ☒ Extending Thread
 - ☒ Implementing Runnable Interface
- o Manipulating Thread State
- o Coordinating Threads
- o Interrupting Threads
- o wait and notify
- o join and sleep
- o Thread Synchronization
- o Dead Lock
- o Volatile Fields
- o Concurrency
- o Thread Pools

Input/Output Streams

- o Overview of Streams
- o Reading and Writing with Bytes
- o Reading and Writing with Characters
- o Bytes vs. Characters
- o Converting Byte Streams to Character Streams
- o File Object
- o Binary Input and Output
- o PrintWriter Class
- o Reading and Writing Objects
- o Basic and Filtered Streams

Java Serialization

- o The Challenge of Object Serialization
- o Serialization API
- o Serializable Interface
- o ObjectOutputStream and ObjectOutputStream
- o The Serialization Engine
- o Transient Fields
- o readObject and writeObject
- o Externalizable Interface

Core Collection Classes

- o The Collections Framework
- o The Set Interface
- o Set Implementation Classes
- o The List Interface
- o List Implementation Classes
- o The Queue Interface
- o Queue Implementation Classes
- o The Map Interface
- o Map Implementation Classes

Collection Sorting and Tuning

- o Using Java 5.0 Features with Collections
- o Sorting with Comparable
- o Sorting with Comparator
- o Sorting Lists and Arrays
- o Collections Utility Methods
- o Tuning ArrayList
- o Tuning HashMap and HashSet

String Manipulations

- o String class
- o StringBuffer Class
- o StringBuilder Class
- o String Tokenizer
- o Regular Expression
- o String Application

Reflection

- o Uses off Meta-Data
- o The Reflection API
- o The java.lang. reflect Package
- o Class, Method, Field, Constructor
- o Reading Type Information
- o Dynamic Instantiation
- o Dynamic Invocation
- o Reflecting on Generics

Generics

- o Using Generics
- o Type Erasure
- o Type Boundaries
- o Wildcards
- o Generic Methods
- o Strengths and Weaknesses of Generics
- o Legacy Code and Generics

Annotations

- o Aspect-Oriented Programming and Java
- o The Annotations Model
- o Annotation Types and Annotations
- o Built-In Annotations
- o Annotations vs. Descriptors (XML)

Introduction to JDBC

- o The JDBC Connectivity Model
- o Database Programming
- o Connecting to the Database
- o Creating a SQL Query
- o Getting the Results
- o Updating Database Data
- o Finishing Up

JDBC SQL Programming

- o Error Checking and the SQLException Class
- o The SQLWarning Class
- o JDBC Types
- o Executing SQL Queries
- o ResultSetMetaData
- o Executing SQL Updates
- o Using a PreparedStatement
- o Parameterized Statements
- o Stored Procedures
- o Transaction Management

GUI Programming

- o Applet
 - ☑ Introduction to Applets
 - ☑ Applet Architecture and Life cycle
 - ☑ Applet Display methods
 - ☑ Applet Example
 - ☑ The html Applet tag
 - ☑ Passing parameters to Applet

o AWT and Event Handling

- ☐ The Delegation Event Model
- ☐ Events and Event sources
- ☐ Event Listeners
- ☐ Adaptor classes
- ☐ AWT classes
- ☐ AWT controls

Label

Push Button

Check boxes

Choice List

☐ Layout Managers

o Swing

- ☐ Architecture of Swing
- ☐ Swing Component classes

ButtonGroup

ImageIcon

JApplet

JButton

JCheckBox

JLabel

JRadioButton

JTextField

JTable

ADVANCE JAVA

J2EE

J2EE Introduction

- o J2EE Overview
- o J2EE Architecture
 - ☑ Single Tier
 - ☑ Two tier
 - ☑ Three Tier
 - ☑ N tier
- o Web and Business component

XML

- o Introduction to XML
- o Use of XML
- o XML Tree
- o XML syntax rule
- o XML Elements
- o XML Attribute
- o XML Validation
- o XML Parser(DOM and SAX)

Java Servlets

- o Introduction to Servlet
- o Life cycle of Servlet
- o Creating and Reading form
- o Initialization parameter
- o Handling Request and Response data
- o Servlet Context
- o Servlet Config
- o Request Dispatching
- o Session Management
- o Listeners
- o Filters
- o Creating and deploying web application in web Server
- o Single Thread Model
- o Different Scope

JSP (Java Server Pages) & JSTL

- o JSP Architecture
- o JSP scripting elements
- o JSP directives
- o JSP Action tags
- o Implicit Objects
- o Session Management in JSP
- o Exception handling in JSP
- o Custom Tags
- o JSTL tags
- o Expression Language

Enterprise Java Beans(EJB 3.0)

- o Introduction to Enterprise Java Beans
- o Why and where to use EJB
- o Application Servers
- o Architecture of Enterprise Java Beans
- o Types of EJB
- o Session Bean

- ☑ Introduction to Session Beans
- ☑ Life Cycle of Session Beans
- ☑ State Management in Session Beans
- ☑ Types of Session Beans

Statefull Beans

Stateless Beans

- ☑ Activation and Passivation Callbacks

o Message Driven Beans and JMS Implementation

- ☑ Concepts of JMS and its implementation in MDB
- ☑ Introduction to MDB
- ☑ Life Cycle of MDB
- ☑ Massaging Models

Point to point model

Topic Subscribe Model

o Entity Beans

- ☒ Object-Relational Mapping
- ☒ What Is an Entity?
- ☒ Entities versus Session Beans
- ☒ Persistence Provider
- ☒ Entity Classes
- ☒ The Entity Manager API
- ☒ Entity Life Cycle
- ☒ Life-Cycle Callbacks
- ☒ Types

Container Managed persistence
Bean managed persistence

☒ Design Patterns

o Creational Patterns

- ☒ Abstract Factory
- ☒ Singleton

o Structural Pattern

- ☒ Adaptor Pattern
- ☒ Façade

o Behavioral Pattern

- ☒ Iterator

o J2EE Patterns

- ☒ MVC
- ☒ Data Access Object pattern
- ☒ Intercepting Filter

Web Services

Introduction to Web services

- o SOAP
- o WSDL
- o UDDI

Java Mail

- o Java Mail Systems
- o Architecture of Java Mail
- o Sending mail
- o Receiving mail

Java Naming and Directory Interface

- o JNDI Architecture
- o Context
- o Looking up objects in a context
- o Data source

Java Frameworks

- Struts
- Hibernate
- Spring

Contents :-

STRUTS

Struts 2: the modern web application framework

- o Introduction on Framework
- o Advantage of Frameworks for web applications
- o The Struts 2 framework
- o Struts2 architecture
- o A quick hello
- o HelloWorld using annotations

Working with Struts 2 actions

- o Introducing Struts 2 actions
- o Packaging your actions
- o Implementing actions
- o Transferring data onto objects

Adding workflow with interceptors

- o Why intercept requests?
- o Interceptors in action
- o Surveying the built-in Struts 2 interceptors
- o Declaring interceptors
- o Building your own interceptor

Data transfer: OGNL and type conversion

- o Data transfer and type conversion: common tasks of the web application domain
- o OGNL and Struts 2
- o Built-in type converters
- o Customizing type conversion

Building a view: tags

- o Getting started
- o An overview of Struts tags
- o Data tags
- o Control tags
- o Miscellaneous tags
- o A brief primer for the OGNL expression language

Results in detail

- o Life after the action
- o Commonly used result types
- o JSP alternatives
- o Global results

Exploring the validation framework

- o Getting familiar with the validation framework
- o Wiring your actions for validation
- o Writing a custom validator

Understanding internationalization

- o The Struts 2 framework and Java i18n
- o A Struts 2 i18n demo
- o Struts 2 i18n: the details

For further Information/Free Demo please SMS(Course)/Call at the under-given numbers :-

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