



## Course Content for Java and J2EE Training

### Course Objectives:

- ❖ Programming in the Java programming language
- ❖ Knowledge of object-oriented paradigm in the Java programming language,
- ❖ The use of Java in a variety of technologies and on different platforms.
- ❖ Knowledge of the structure and model of the Java programming language, (knowledge)
- ❖ Use the Java programming language for various programming technologies (understanding)
- ❖ develop software in the Java programming language, (application)
- ❖ Evaluate user requirements for software functionality required to decide whether the Java programming language can meet user requirements (analysis)
- ❖ Propose the use of certain technologies by implementing them in the Java programming language to solve the given problem (synthesis)
- ❖ Choose an engineering approach to solving problems, starting from the acquired knowledge of programming and knowledge of operating systems. (evaluation)

### **Session 1: Java Basic**

- ❖ Overview
- ❖ Environment Setup

- ❖ Basic Syntax
- ❖ Object & Classes
- ❖ Basic Datatypes
- ❖ Variable Types
- ❖ Modifier Types
- ❖ Basic Operators
- ❖ Loop Control
- ❖ Decision Making
- ❖ Numbers
- ❖ Characters
- ❖ Strings
- ❖ Arrays
- ❖ Date & Time
- ❖ Regular Expressions
- ❖ Methods
- ❖ Files and I/O
- ❖ Exceptions
- ❖ Inner classes



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## **Session 2: Java Object Oriented**

- ❖ Inheritance
- ❖ Overriding
- ❖ Polymorphism
- ❖ Abstraction
- ❖ Encapsulation

- ❖ Interfaces
- ❖ Packages

### **Session 3: Java Advanced**

- ❖ Data Structures
- ❖ Collections
- ❖ Generics
- ❖ Serialization
- ❖ Networking
- ❖ Sending Email
- ❖ Multithreading
- ❖ Applet Basics



### **Session 4: A Simple Servlet**

- ❖ Example Two-tiered Web Application
- ❖ J2EE Software and Setup
- ❖ Environment, Path and Classpath Settings
- ❖ J2EE Application Components
- ❖ Create the HTML Page
- ❖ Create the Servlet
- ❖ Compile the Servlet
- ❖ Start the J2EE Application Server
- ❖ Start the Deployment Tool
- ❖ Assemble the J2EE Application
- ❖ Verify and Deploy the J2EE Application
- ❖ Run the J2EE Application

- ❖ Updating Component Code

## **Session 5: A Simple Session Bean**

- ❖ Example Application Overview
- ❖ Create the Session Bean
- ❖ Local Interfaces
- ❖ Modify the Servlet
- ❖ Compile the Session Bean and the Servlet
- ❖ Start the Platform and the Tools
- ❖ Assemble the J2EE Application
- ❖ Verify and Deploy the J2EE Application
- ❖ Run the J2EE Application



## **Session 6: A Simple Entity Bean**

- ❖ Create the Entity Bean
- ❖ Change the Servlet
- ❖ Start the Platform and Tools
- ❖ Assemble and Deploy
- ❖ Run the J2EE Application

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## **Session 7: A Simple Message Bean**

- ❖ JMS Overview
- ❖ Create the Message-Driven Bean

- ❖ Change the Servlet
- ❖ Start the Platform and the Tools
- ❖ Assemble the J2EE Application
- ❖ Verify and Deploy the J2EE Application
- ❖ Run the J2EE Application

### **Session 8: Cooperating Enterprise Beans**

- ❖ Change the Entity Bean
- ❖ Change the Session Bean
- ❖ Change the Servlet
- ❖ Start the Platform and Tools
- ❖ Assemble the Application
- ❖ Verify and Deploy the J2EE Application
- ❖ Run the J2EE Application



### **Session 9: JavaServer Pages Technology**

- ❖ Change the Entity Bean
- ❖ Change the Session Bean
- ❖ Change the Servlet
- ❖ Start the Platform and Tools
- ❖ Assemble the Application
- ❖ Verify and Deploy the J2EE Application
- ❖ Run the J2EE Application

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### **Session 10: Adding JavaBeans to the Mix**

- ❖ About the Example
- ❖ Create bonus.jsp
- ❖ Create the JavaBeans Class
- ❖ Bean Properties
- ❖ Change the Servlet
- ❖ Start the Platform and Tools
- ❖ Update the WAR File
- ❖ Verify and Deploy the J2EE Application
- ❖ Run the J2EE Application

## **Session 11: Custom JSP Tag Libraries**

- ❖ About the Example
- ❖ Custom JSP Tag
- ❖ Declare the Tag Library
- ❖ Create the Tag Library Descriptor
- ❖ Create the Tag Handler Class
- ❖ Change bonus.jsp
- ❖ Start the Platform and Tools
- ❖ Update the WAR File
- ❖ Verify and Deploy the J2EE Application
- ❖ Run the J2EE Application
- ❖ More Information Gladiator-Predator Testing

## Session 12: XML

- ❖ Marking and Handling Text
- ❖ Change the JavaBean Class
- ❖ Creating the XML document using DOM
- ❖ Parsing XML using SAX
- ❖ SAX and DOM
- ❖ XML and J2EE
- ❖ Change the Servlet
- ❖ Compile the Application
- ❖ Update the Application
- ❖ Verify and Deploy the J2EE Application

## Session 13: JDBC Technology and Bean-Managed Persistence

- ❖ Bean Lifecycle
- ❖ Change the BonusBean
- ❖ Other Components
- ❖ Create the Database Table
- ❖ Start the Platform and Tools
- ❖ Update the JAR File
- ❖ Verify and Deploy the Application
- ❖ Run the Application

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