

New Features of the Java SE 6 Platform (SEM-DTJ-1001)



Synopsis

The New Features of the Java SE 6 Platform course provides students with information on how to program applications with Java technology using the new features of the Java Platform, Standard Edition 6 (Java SE 6). Java SE 6 has many new features, enhancements, and improvements, such as better GUI performance and better handling of the behavior of GUI applications, plus improvements and new features in server-side core and Java core. In this course, students learn the enhancements and new features of Java SE 6 in the areas of production time instrumentation, monitoring, and management, diagnosability, web services, scripting language support, networking, desktop client programming, support for annotations, and security.

Who Can Benefit

Students who can benefit from this course are programmers already familiar with the basic structure and syntax of the Java programming language and who need to further expand this knowledge to develop complex, production-level applications. Students who can benefit from this course also include application developers, architects, system administrators, technical managers, web developers, and individual who want to learn the new features and enhancements in the Java SE 6 programming language.

Prerequisites

To succeed fully in this course, students should be able to:

- Develop applications using Java SE 5 or earlier releases of the Java programming language
- Program desktop clients using the Java programming language

Related Courses

Related courses before

- SL-110: Fundamentals of the Java Programming Language (SL-110)
- SL-275: Java Programming Language (SL-275)

Related courses after

- SL-285: Java Programming Language Workshop (SL-285)



Skills Gained

Upon completion of this course, you should be able to:

- Integrate applications using the java.awt.Desktop API and Windows API
- Describe and use the new desktop integration features
- Describe and use the new Dialog modality options
- Describe the many new features in the Swing toolkit, which simplify application development and provide a better user experience
- Use JAX-WS to build web applications and web services, incorporating the newer XML-based web services functionality
- Bind an XML schema to a representation in Java code using the Java Architecture for XML Binding (JAXB) 2.0
- Describe how DTrace examines the behavior of Java programs and the operating system
- Describe the enhancements to the management and monitoring API in Java SE 6
- List the enhancements to the JMX API
- Analyze and detect memory leak using the enhanced garbage collection techniques
- Interact, store, and retrieve data with applications running on the smart card and Java technology applications
- Use an embedded scripting environment from a Java platform application using the Java Scripting framework
- Describe the enhancements in the Java input/output API (java.io)
- Compare Java SE 6 out of box performance with competing JVM(TM) machines and its own tuned performance
- Describe how to get high throughput using Java SE 6

REGISTRATION AND INFORMATION

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Content

Scripting Integration

- Describe scripting
- List the benefits of scripting
- Explain the motivation for scripting in the Java SE 6 platform
- Describe the support for scripting in the Java SE 6 platform
- Define the Scripting API
- Describe the scripting.dev.java.net project

Desktop

- Describe how JDK 6 uses the host desktop's font smoothing settings to ensure consistent text rendering
- Describe and use the new desktop integration features
- Describe and use the new Dialog modality options
- Describe the many new features in the Swing toolkit, which simplify application development and provide a better user experience
- Describe the improvements that make it easier to customize deployment and installation of applications

Web Services and XML

- Describe support for the Java API for XML Web Services (JAX-WS) 2.0
- Use JAX-WS to build web applications and web services, incorporating the newer XML-based web services functionality
- Bind an XML schema to a representation in Java code using Java Architecture for XML Binding (JAXB) 2.0
- List the enhancements to the Java API for XML Processing (JAXP)

Monitoring and Management

- Monitoring and managing application programming interfaces (API)
- Diagnosing common problems in Java SE applications
- Diagnosing java.lang.OutOfMemoryError using the enhanced Java HotSpot Virtual Machine (VM)
- Diagnosing bottlenecks and memory problems in Java applications using: jmap, jstack, jstat, and jhat
- Using the Java Management Extensions (JMX) technology
- Improvements to the JMX Monitoring API
- Monitor Java applications using JConsole
- Use various Java Development Kit (JDK) tools to monitor Java applications
- Describe how DTrace examines the behavior of Java programs and the operating system

- Monitor and manage applications using the Java Management Extensions (JMX) technology
- List the enhancements to the JMX API

Performance Improvements

- Identify the constraints on Java technology performance
- Describe enhancements that support large pages
- Describe enhancements in garbage collection
- Describe enhancements that reduce synchronization overhead
- Describe JNI memory barrier removal
- Describe enhancements to String.indexOf
- Compare Java SE 6 out-of-box performance with competing JVM software and its own tuned performance
- Describe how to get high throughput using Java SE 6

Platform Integration

- Understand the expanded capabilities for language processing
- Access network parameters programmatically using the java.net.NetworkInterface class and the new java.net.InterfaceAddress class
- Understand the default CookieManager implementation
- Describe the enhancements in the Java input/output API (java.io)
- Use wild cards in class path
- Interact with smart card enabled applications using Smart Card I/O API
- Access Public-Key Cryptography Standards (PKCS) #11 cryptographic services
- Access native Generic Security Services Application Program Interface (GSS-API) implementation
- Access Microsoft CryptoAPI and its cryptographic services
- Validate XML Signatures using XML Digital Signatures API

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