



Introduction to Object-Oriented programming using Java Standard platform (JSE-01)

Summary

This 9 -day tutor led training course provides an introduction to Java programming, beginning with object-oriented (OO) principles and the structure and syntax of the language. The course adopts a hands on approach to training in which the theory is reinforced with the candidates developing applications as they are taught

Topics that are covered during the nine days cover the well known and used areas Network programming, Swing, AWT, File I/O, and JDBC (Java Database connection). In addition, we will be introducing candidates to the new Java 2 1.5 (TIGER) features as Auto-boxing, Static imports and variable arguments.

At the end of the course, candidates will be sufficiently taught enough to sit for Sun's Java Certified Programmer examination.

Day	Time	Topic	Details
1	10.00 - 13.00	Fundamentals	<ul style="list-style-type: none">▪ Writing, compiling and running a simple Java application▪ Keywords and primitive data types.▪ Data types and promoting▪ Data type wrapper classes and Auto-boxing.▪ Using documentation for the Java class libraries▪ Setting up the JDK environment, class-path and path system environments.
	14.00 - 17.00	Control statements and operators (Part 1)	<ul style="list-style-type: none">▪ If, if-else, for statements▪ While, do-while, switch-case statements▪ for and for-each loops▪ Break and continue statements▪ >, <, &, , = and Ternary operators
2	9.00 - 13.00	Control statements and operators (Part 2)	
	14.00 - 17.00	Revision and tutorials	Candidates will develop programs covering aspects covered up to date on the course



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3	9.00 - 13.00 14.00 - 17.00	Collection Framework Revision and tutorials	<ul style="list-style-type: none"> ▪ Creating single dimensional arrays ▪ Vectors, Sets, Lists and Maps ▪ Java's util package. ▪ Using generics to define type safe collections ▪ Iterating through a collection using <i>for</i> and <i>while</i> loops <p>Cumulative skill check tutorials</p>
4	9.00 - 13.00 14.00 - 17.00	OO principles, classes, interfaces and packages	<ul style="list-style-type: none"> ▪ OO principles: Inheritance, encapsulation and polymorphism. ▪ General form of a class and interface. ▪ Constructors and the new and extends key words ▪ instance variables and this keyword ▪ methods, variables, arguments, variable length arguments. ▪ Overriding and overloading of methods. ▪ Access modifiers for classes, methods and variables. Introducing abstract, final, public, private, transient, protected, static and volatile. The synchronized access modifier will be dealt with during the Thread topic.
5	9.00 - 13.00 14.00 - 17.00	Revision and Tutorials	Cumulative skill check tutorials
6	9.00 - 13.00 14.00 - 17.00	Exceptions Thread Programming	<ul style="list-style-type: none"> ▪ Defining exceptions and declaring methods that may throw exceptions ▪ Using the try, catch and finally keywords to handle an exception. ▪ Explaining the throw and throws keywords. ▪ Creating threads ▪ synchronized keyword ▪ Deadlock and thread communication ▪ notify, notifyAll, yield and wait methods
7	14.00 - 17.00	Network and I/O Programming	<ul style="list-style-type: none"> ▪ Transmission Control Protocol (TCP) and User Datagram Protocol (UDP) ▪ Using sockets and serverSocket classes to send and receive bytes from streams. ▪ Reading from and writing to I/O streams.



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8	9.00 - 13.00 14.00 - 17.00	Swing programming including AWT Database Programming	<ul style="list-style-type: none">▪ Swing components, Frames, Panels, Buttons, Labels, Text-Fields etc▪ Layout Managers, Border, Flow Grid layout.▪ Understanding anonymous inner classes and event handling ▪ Establishing a connection to a database with the JDBC API▪ Storing connection strings in a properties file▪ Mapping SQL and Java types▪ Reading from and updating a database with ResultSet and PreparedStatement classes
9	9.00 - 13.00 14.00 - 17.00	Revision and tutorials	<ul style="list-style-type: none">▪ Candidates will develop a fully working Swing application encompassing all topics covered in the course▪ Topic for further investigation :- Servlets, JSP, J2EE, RMI and JNDI, XML, Ant and JUnit.▪ IDE's, Development methodology and lifecycle.▪ Explaining topics that are emphasized during the Java Certified Programmer examination.