

Introduction to Java with Object Oriented Development

Course Length: 5 days

Price: \$2,500

Summary

If you're new to Java programming, this course will get you started quickly and easily. First, it shows how to install Java so you can compile and test Java programs on your own systems. Then, it teaches you all the core Java skills you need to develop object-oriented applications. These skills include working with data types, classes, objects, strings, arrays, control statements, inheritance, interfaces, and exceptions.

Who Should Attend?

Students should be familiar with using a structured programming language. If you are a beginning programmer, we recommend our "*Introduction to Programming*" class as a prerequisite course.

Course Outline

Java Integrated Development Environments (IDE's)

- Eclipse
- Netbeans
- Alternatives

Getting Started with Java

- Toolkits and platforms
- Java compared to C++ and C#
- Applications, Applets, and Servlets
- Java Code Compilation and Interpretation
- Installing Java
- Working with TextPad and Eclipse
- Installing and Using Documentation

Working with Data

- Primitive Data Types
- Initializing Variables and Constants
- Operators, Arithmetic Expressions, and Precedence
- Casting
- Java Classes for Data Type Work

Control Statements

- Boolean Expressions
- Comparing Primitive Types
- Comparing Strings
- Logical Operators
- If/else and Switch Statements
- Loops
- Break and Continue Statements
- Working with Static Methods

Input Validation

- How Exceptions Work
- Catching Exceptions
- Validating Data
 - Proactive – Prevent Exceptions
 - Reactive – Exception Handlers
- Creating Generic Methods for Validation

Defining and Using Classes

- Introduction to Classes
- Encapsulation
- Defining a Class
 - Instance Variables
 - Constructors

- Methods
- Overloaded Methods
- Using the this Keyword
- Object Instantiation
- Calling Methods
- Working with Primitive and Reference Types
- Working with Static Fields and Methods

Inheritance

- Inheritance Defined
- Inheritance used in the Java API
- The Object Class
- Creating a Superclass
- Creating a Subclass
- Getting Information about an Object's Type
- Casting and Comparing Objects
- Working with the Abstract and Final Keywords

Other Object Oriented Skills

- Working with Packages
- Using Javadoc to Document a Package
- Coding Classes that are Closely Related
- Working with Enumerations
- Working with Static Imports

Arrays

- Basic Skills for Working with Arrays
- The Methods of the Arrays Class
- Implementing the Comparable Interface
- Creating a Reference to an Array
- Copying Arrays

- Working with multi-Dimensional Arrays
- Working with Jagged Arrays

Collections and Generics

- Comparison of Arrays to Collections
- Commonly Used Collection Classes
- Introduction to Generics
- Using the ArrayList Class
- Using the LinkedList Class
- Working with HashMap and TreeMap Classes
- Working with Legacy Collections

Dates and Strings

- Working with Dates and Times
- The Date Class
- Using the DateFormat Class
- Working with the String Class
- Working with the StringBuilder Class

Exceptions

- Introduction to Exceptions
- Working with Exceptions (try, finally throws, throw)
- Working with Custom Exceptions
- Exception Chaining
- Working with Assertions

Threads

- Introduction to Threads
- Creating Threads
- Manipulating Threads (sleep, priority, and interrupt)
- Thread Synchronization