

## Java SE7 Fundamentals

**Duration:** 5 Days

### What you will learn

This Java SE 7 Fundamentals training teaches students with little or no programming experience to begin to learn programming using the Java programming language. It explores the significance of object-oriented programming, the keywords and constructs of the Java programming language and the steps required to create simple Java technology programs.

### Learn To:

Use various Java programming language constructs to create several Java technology applications.

Use decision and looping constructs and methods to dictate program flow.

Perform basic error handling for your Java technology programs.

Implement intermediate Java programming and object-oriented (OO) concepts in Java technology programs.

Demonstrate knowledge of Java technology and the Java programming language.

### Benefits to You

By investing in this course, you'll develop a solid foundation in the Java programming language upon which to base continued work and training. It features the Java Platform, Standard Edition 7 (Java SE 7), and uses the Java SE Development Kit 7 (JDK 7) product.

### Participate in Hands-On Exercises

You'll gain hands on experience with basic object oriented concepts like inheritance, encapsulation and abstraction.

Learn to create and use simple Java classes containing arrays, loops and conditional constructs.

### Dive into Real World Applications

You'll also learn how to use and manipulate object references, as well as write simple error handling code. This course helps you develop a solid understanding of what the Java SE7 platform is and how it's used in real world applications.

### Live Virtual Class Format

A Live Virtual Class (LVC) is exclusively for registered students; unregistered individuals may not view an LVC at any time. Registered students must view the class from the country listed in the registration form. Unauthorized recording, copying, or transmission of LVC content may not be made.

### Audience

Application Developers

Developer  
Portal Developer  
Project Manager  
System Administrator  
Technical Administrator  
Technical Consultant  
Web Administrator

### Course Objectives

Develop classes and describe how to declare a class

Analyze a business problem in order to recognize objects and operations that form the building blocks of the Java program design

Define the term

Demonstrate Java programming syntax

Write a simple Java program that compiles and runs successfully

Declare and initialize variables

List several primitive data types

Instantiate an object and effectively use object reference variables

Use operators, loops, and decision constructs

Declare and instantiate Arrays and ArrayLists and be able to iterate through them

Describe the benefits of using an Integrated Development Environment (IDE)

List and describe several key features of the Java technology

Declare a method with arguments and return values

Use inheritance to declare and define a subclass of an existing superclass

Describe how errors are handled in a Java program

Describe examples of how Java is used in applications, as well as consumer products

### Course Topics

#### Introducing the Java Technology

Relating Java with other languages

Showing how to download, install, and configure the Java environment on a Windows system.

Describing the various Java technologies such as Java EE, JavaME, Embedded Java SE

Describing key features of the technology and the advantages of using Java  
Using an Integrated Development Environment (IDE)

### **Thinking in Objects**

Defining the problem domain  
Identifying objects and recognizing the criteria for defining objects

### **Introducing the Java Language**

Defining classes  
Identifying the components of a class  
Creating and using a test class  
Compiling and executing a test program

### **Working with Primitive Variables**

Declaring and initializing field variables  
Describing primitive data types such as integral, floating point, textual, and logical  
Declaring variables and assigning values  
Using constants  
Using arithmetic operators to modify values

### **Working with Objects**

Declaring and initializing objects  
Storing objects in memory  
Using object references to manipulate data  
Using JSE javadocs to look up the methods of a class  
Working with String and StringBuilder objects

### **Using operators and decision constructs**

Using relational and conditional operators  
Testing equality between strings  
Evaluating different conditions in a program and determining the algorithm  
Creating if and if/else constructs  
Nesting and chaining conditional statements  
Using a switch statement

### **Creating and Using Arrays**

Declaring, instantiating, and initializing a one-dimensional Array  
Declaring, instantiating, and initializing a two-dimensional Array  
Using a for loop to process an Array  
Creating and initializing an ArrayList  
Using the import statement to work with existing Java APIs  
Accessing a value in an Array or and ArrayList  
Using the args Array

### **Using Loop Constructs**

Creating while loops and nested while loops  
Developing a for loop  
Using ArrayLists with for loops  
Developing a do while loop  
Understanding variable scope

### **Working with Methods and Method Overloading**

- Creating and Invoking a Method
- Passing arguments and returning values
- Creating static methods and variables
- Using modifiers
- Overloading a method

### **Using Encapsulation and Constructors**

- Creating constructors
- Implementing encapsulation

### **Introducing Advanced Object Oriented Concepts**

- Using inheritance
- Using types of polymorphism such as overloading, overriding, and dynamic binding
- Working with superclasses and subclasses
- Adding abstraction to your analysis and design
- Understanding the purpose of Java interfaces
- Creating and implementing a Java interface

### **Handling Errors**

- Understanding the different kinds of errors that can occur and how they are handled in Java
- Understanding the different kinds of Exceptions in Java
- Using Javadocs to research the Exceptions thrown by the methods of foundation classes
- Writing code to handle Exceptions

### **The Big Picture**

- Creating packages and JAR files for deployment using java
- Two and three tier architectures
- Looking at some Java applications examples