

## Fundamentals of the Java Programming Language, Java SE 6 (SL-110-SE6)

**Duration:** 5 Days

### What you will learn

The Fundamentals of the Java Programming Language course was designed to enable students with little or no programming experience to begin to learn programming using the Java programming language. The course teaches 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. Students taking this course can receive a solid basis in the Java programming language upon which to base continued work and training. The course features the Java Platform, Standard Edition 6 (Java SE 6) platform, and uses the Java SE Development Kit 6 (JDK 6) product.

Students who can benefit from this course:

Beginners to programming who have basic mathematical, logical, and analytical problem-solving skills and who want to begin learning the Java programming language. This includes technical writers, web developers, technical managers, and individuals with a technical, non-programming background, such as system administrators

Novice programmers and those programmers who prefer to start learning the Java programming language at an introductory level.

Students who wish to begin their study of the Sun Certified Java Associate (SCJA) exam

### Prerequisites

#### *Required Prerequisites*

Describe the concept of a variable

Execute commands using a command-line interface

Solve logic problems

Use a World Wide Web (WWW) browser

Create and edit text files using a text editor

### Course Objectives

Demonstrate knowledge of Java technology, the Java programming language, and the product life cycle

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

Use decision and looping constructs and methods to dictate program flow

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

### Course Topics

#### **Explaining Java Technology**

Describe key concepts of the Java programming language

List the three Java technology product groups

Summarize each of the seven stages of the product life cycle

## **Analyzing a Problem and Designing a Solution**

Analyze a problem using object-oriented analysis

Design classes from which objects will be created

## **Developing and Testing a Java Technology Program**

Identify the four components of a class in the Java programming language

Use the main method in a test class to run a Java technology program from the command line

Compile and execute a Java technology program

## **Declaring, Initializing, and Using Variables**

Identify the use the syntax for variables and define the syntax for a variable

List the eight Java programming language primitive data types

Declare, initialize, and use variables and constants according to Java programming language guidelines and coding standards

Modify variable values using operators

Use promotion and type casting

## **Creating and Using Objects**

Declare, instantiate, and initialize object reference variables

Compare how object reference variables are stored in relation to primitive variables

Use a class (the String class) included in the Java Software Developer Kit (SDK)

Use the Java 2 Platform, Standard Edition (J2SE[™]) class library specification to learn about other classes in this application

## **Using Operators and Decision Constructs**

Identify relational and conditional operators

Create if and if/else constructs

Use the switch construct

## **Using Loop Constructs**

Create while loops

Develop for loops

Create do/while loops

## **Developing and Using Methods**

Describe the advantages of methods and define worker and calling methods

Declare and invoke a method

Compare object and static methods

Use overloaded methods

## **Implementing Encapsulation and Constructors**

Use encapsulation to protect data

Create constructors to initialize objects

## **Creating and Using Arrays**

Code one-dimensional arrays

Set array values using length attribute and a loop

Pass arguments to the main method for use in a program

Create two-dimensional arrays

## **Implementing Inheritance**

Define and test your use of inheritance

Explain abstraction

Explicitly identify class libraries used in your code