Java SE 8 Fundamentals

Duration: 5 Days

What you will learn

This Java SE 8 Fundamentals training introduces you to object-oriented programming using the Java language. Through hands-on exercises, you'll begin to build a baseline of knowledge to propel your career in development.

Learn To:

Use Java programming language constructs to create a Java technology application.
Use decision and looping constructs and methods to dictate program flow.
Understand basic object oriented concepts such as inheritance, encapsulation, and abstraction.
Use and manipulate object references, and to write simple error handling code.
Use the new SE 8 java.time and java.time.format packages to format and print the local date and time.
Specify a data modification by passing a predicate lambda expression to the Collections class.

Benefits to You
By enrolling in this course, you'll expand your knowledge of Java SE 8, while building your Java skill set. You'll build a solid basis in the Java programming language upon which to base continued work and training.

Audience

Application Developers
Developer
Project Manager
System Administrator
Team Leader
Technical Administrator
Technical Consultant
Web Administrator

Course Objectives

Write Java code that uses variables, arrays, conditional and loop constructs

Manipulate primitive numeric data and string data using Java operators

Create Java classes and use object references

Access the fields and methods of an object

Manipulate text data using the methods of the String and StringBuilder classes

Use casting without losing precision or causing errors

Declare, override, and invoke methods

Access and create static fields and methods

Use classes from the java.time and java.time.format packages to format and print the local date and time

Encapsulate a class using access modifiers and overloaded constructors

Define and implement a simple class hierarchy

Demonstrate polymorphism by implementing a Java Interface

Use a Predicate Lambda expression as the argument to a method

Handle a checked exception in a Java application

Course Topics

What Is a Java Program?
Introduction to Computer Programs
Key Features of the Java Language
The Java Technology and Development Environment
Running/testing a Java program

Creating a Java Main Class
Java Classes
The main Method

Data In the Cart
Introducing variables
Working with Strings
Working with numbers
Manipulating numeric data

Managing Multiple Items
Working with Conditions
Working with a List of Items
Processing a list of items

Describing Objects and Classes
Working with objects and classes
Defining fields and methods
Declaring, Instantiating, and Initializing Objects
Working with Object References
Doing more with Arrays
Introducing the NetBeans IDE
Introducing the Soccer League Use Case

Manipulating and Formatting the Data in Your Program

Using the String Class
Using the Java API Docs
Using the StringBuilder Class
More about primitive data types
The remaining numeric operators
Promoting and casting variables

Creating and Using Methods

Using methods
Method arguments and return values
Static methods and variables
How Arguments are Passed to a Method
Overloading a method

Using Encapsulation

Access Control
Encapsulation
Overloading constructors

More on Conditionals

Relational and conditional operators
More ways to use if/else constructs
Using Switch Statements
Using the NetBeans Debugger

More on Arrays and Loops

Working with Dates
Parsing the args Array
Two-dimensional Arrays
Alternate Looping Constructs
Nesting Loops
The ArrayList class

Using Inheritance

Overview of inheritance
Working with subclasses and superclasses
Overriding methods in the superclass
Introducing polymorphism
Creating and extending abstract classes

Using Interfaces

Polymorphism in the JDK foundation classes
Using Interfaces
Using the List Interface
Introducing Lambda expressions

Handling Exceptions

Handling Exceptions: An overview
Propagation of exceptions
Catching and throwing exceptions
Handling multiple exceptions and errors