



# Java SE 8 Fundamentals

## 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.

## 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



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- 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

## 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

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❖ 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