

Java SE 17: Programming Complete

1: Introduction to Java

- Introduction to Java
- Object Oriented Principles
- Inheritance
- Use Access Modifiers
- Practices for Lesson 1: Overview

2: Primitive Types, Operators, and Flow Control Statements

- Primitive Types, Operators, and Flow Control Statements
- Assignment and Arithmetic Operators
- Binary Number Representation
- Flow Control Using switch Construct
- Practices for Lesson 2: Primitive Types, Operators, and Flow Control Statements
- Practice 2-2: Use the if/else and switch Constructs and the Ternary Operator
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3: Text, Date, Time, and Numeric Objects

- Text, Date, Time, and Numeric Objects
- Text Blocks
- Wrapper Classes for Primitives
- Local Date and Time
- Represent Languages and Countries
- Format and Parse Date and Time Values
- Practice 3-1: Explore String and StringBuilder Objects....Part 1
- Practice 3-1: Explore String and StringBuilder Objects....Part 2
- Practice 3-2: Use BigDecimal Class and Format Numeric Values
- Practice 3-3: Use and Format Date and Time Values
- Practice 3-4: Apply Localization and Format Messages

4: Classes and Objects

- Classes and Objects
- Local Variable Type Inference
- IntelliJ IDE: Introduction
- Practice 4-1: Create the Product Management Application
- Practice 4-2: Enhance the Product Class
- Practice 4-3: Document Classes

• 5: Improved Class Design

- Improved Class Design
- Access Modifiers Summary
- Enumerations
- Practice 5-1 and Practice 5-2
- Practice 5-3: Make Product Objects Immutable

- **6: Implement Inheritance and Use Records**
 - Implement Inheritance and Use Records
 - Verify Object Type Before Casting the Reference
 - Override Methods and Use Polymorphism
 - Sealed Classes, Inheritance Under Control
 - Factory Method Pattern
 - Practice 6-1 and Practice 6-2
 - Practice 6-2: Override Methods and Use Polymorphism....Cntd
 - Practice 6-3: Create Factory Methods
 - Practice 6-4 and Practice 6-5
 - Practice 6-6: Explore Java Records
 - Practice 6-7: Implement Sealed Classes with Records

- **7: Interfaces and Generics**
 - Interfaces and Generics
 - Default, Private, and Static Methods in Interfaces
 - Generics
 - Practice 7-1 and Practice 7-2
 - Practice 7-3: Test the Product Review Functionality

- **8: Arrays and Loops**
 - Arrays and Loops
 - The Arrays Class
 - Summary
 - Practice 8-1: Allow Multiple Reviews for a Product

- **9: Collections**
 - Collections
 - Create Set Object
 - Create HashMap Object
 - Access Collections Concurrently
 - Practice 9-1: Organize Products and Reviews into a HashMap .
 - Practice 9-2: Implement Review Sort and Product Search Features

- **10: Nested Classes and Lambda Expressions**
 - Nested Classes and Lambda Expressions
 - Define Lambda Expression Parameters and Body
 - Practice 10-1: Refactor ProductManger to Use a Nested Class
 - Practice 10-2: Produce Customized Product Reports

- **11: Java Streams API**
 - Java Streams API
 - Bi-argument Variants of Functional Interfaces
 - Aggregate Stream Data using reduce Operation
 - Restrictions on Parallel Stream Processing
 - Splitter

- Practice 11-1: Modify ProductManager to Use Streams
- Practice 11-2: Add Discount Per Rating Calculation
- **12: Exception Handling, Logging, and Debugging**
 - Exception Handling, Logging, and Debugging
 - Handling Exceptions
 - Normal Program Flow with No Exceptions
 - Practice 12-1: Use Exception Handling to Fix Logical Errors
 - Practice 12-2: Add Text Parsing Operations
- **13: Java IO API**
 - Java IO API
 - Serializable Object Graph
 - Working with Filesystems
 - Delete Paths
 - Practice 13-1: Print Product Report to a File
 - Practice 13-2: Bulk-Load Data from Files
 - Practice 13-3: Implement Memory Swap Mechanism
- **14: Java Concurrency and Multithreading**
 - Java Concurrency and Multithreading
 - Manage Executor Service Life Cycle
 - Writing Thread-Safe Code
 - Summary
 - Practice 14-1 and Practice 14-2
 - Practice 14-3: Simulate Concurrent Callers
- **15: Modules and Deployment**
 - Modules and Deployment
 - JPMS Module Categories
 - Open Module Content
 - Multi-Release Module Archives
 - Practice 15-1: Convert Product Management Application into a Module
 - Practice 15-2: Separate Application into Several Modules
- **16: Annotations**
 - Annotations
 - Annotations that Validate Design
- **17: Java Database Connectivity**
 - Java Database Connectivity
 - Create and Execute Callable SQL Statements
- **18: Java Security**

- Java Security
 - Execute Privileged Code
 - Erroneous Value Guards
- **19: Advanced Generics**
 - Advanced Generics
 - Upper Bound Wildcard
 - **20: Oracle Cloud Deployment**
 - Oracle Cloud Deployment
 - Example of the Microservices Architecture for an Online Mobile Application
 - Summary
 - Practice E-1: Present Application Logic as a Service Using Helidon SE
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 - **21: Miscellaneous Java Topics**
 - Miscellaneous Java Topics
 - Bitwise Logical Operators
 - Character Classes
 - Using the replace All Method
 - Stream Examples
 - Java IO, File Watch Service
 - Factory Design Pattern code demo
 - Singleton Pattern code demo
 - Bitwise Logical Operators code demo
 - Regular Expressions code demo
 - Threads deadlock, livelock, and starvation code demos
 - Streams code demos
 - Java IO, File Watch Service code demos