

## 1 Introduction to Java Applications

Introduction

First Program in Java: Printing a Line of Text

Modifying Our First Java Program

Displaying Text with printf

Another Java Application: Adding Integers

Memory Concepts

Arithmetic

Decision Making: Equality and Relational Operators

## 2 Introduction to Classes and Objects

Introduction

Classes, Objects, Methods and Instance Variables

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Declaring a Method with a Parameter

Instance Variables, set Methods and get Methods

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Initializing Objects with Constructors

Floating-Point Numbers and Type double

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Formulating Algorithms: Sentinel-Controlled Repetition

Formulating Algorithms: Nested Control Statements

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Increment and Decrement Operators

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## 4 Control Statements: Part 2

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Essentials of Counter-Controlled Repetition

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Logical Operators

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## 5 Methods: A Deeper Look

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Section 6.2. Program Modules in Java

Section 6.3. static Methods, static Fields and Class Math

Section 6.4. Declaring Methods with Multiple Parameters

Section 6.5. Notes on Declaring and Using Methods

Section 6.6. Method Call Stack and Activation Records

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Section 6.8. Java API Packages

Section 6.9. Case Study: Random-Number Generation

Section 6.10. Case Study: A Game of Chance (Introducing Enumerations)

Section 6.11. Scope of Declarations

Section 6.12. Method Overloading

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## 8 Object-Oriented Programming: Inheritance

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Case Study: Creating and Using Interfaces

(Optional) GUI and Graphics Case Study: Drawing with Polymorphism

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Section 11.4. Example: Handling ArithmeticExceptions and InputMismatchExceptions

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Section 11.9. printStackTrace, getStackTrace and getMessage

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## 11 Files and Streams

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